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TABLE OF CONTENTS

LEADING ARTICLES Page

The Veterinarian and the Law, by Henry Bixby Hemenway.....53
Mixed Bacterial Infection of Swine, by J. D. Reardon.....57
A New Vision of an Old Plague, by Burton R. Rogers.....61
Vaccination of Hogs by the Peritoneal Method, by J. F. Gillespie....67

EDITORIAL

Conflicting Dates for Association Meetings.....69
Army Veterinarian Matters 71
Late Books for the Veterinarian.....74

DEPARTMENT OF SURGERY

Pitfalls, by L. A. Merillat.....75

DEPARTMENT OF LIVE STOCK POISONING

Recent Literature on Poisonous Plants.....77

QUERIES AND ANSWERS ON VARIOUS TOPICS.....81

POINTED OPINIONS 87

Hospital Facilitates Obstetrical Treatment; Prolonged Case of Parturient Paresis; Bovine Abortion Due to Several Causes; Tapeworm in Peritoneal Cavity of Rabbit; Azoturia Alike in City and Country; Acute Meningitis in Horse; Rupture of Stomach; Urethral Calculus; a Versatile Chap.

MATTERS OF CURRENT INTEREST 21

Association Meetings; New Bulletins; Liautard Library; Army Horse Transport Service; News Notes.

Index to Advertisers.

	Page
Abbott Laboratories	7
American Serum Co.	8
American Veterinary Supply Co.	4th cover
Aurora Serum Co.	58
Beachy, R. M.	56
Beebe Laboratories	38
Betz, Frank S., Co.	8
Big O Serum Co.	24
Bischoff Co., Ernst	10
Carter-Luff Chemical Co.	49
Cedar Rapids Serum Co.	26
Chicago Veterinary College	47
Classified Advertisements	58
Cleveland, W. G., Co.	14
Continental Serum Laboratories	2nd covar
Corn Belt Serum Co.	4
Corn States Serum Co.	23
Crosby-Frisian Fur Co.	56
Cutter Lab. of Illinois	29
Eagle Biological & Supply Co.	29
Elmore Live Stock Co.	43
Eucamphine Co., The	32
Fowler Serum Co.	42
Geo. Washington Univ. V. C.	47
Gillette Clipping Mach. Co.	39
Haussman & Dunn Co.	43
Hueben Serum Co.	33
Indiana Veterinary College	47
Iodum-Miller Co.	28
Jensen-Salisbury Laboratories, Inc.	2nd cover
Kansas Blackleg Serum Co.	12
Kansas City Vet. College	47
Laboratory of Pathology	3
Lathrop Serum Co.	43
Lederle Antitoxin Laboratories	17, 18, 19, 20, 54, 55
Liberty Laboratories	5
List, Theo.	15
McKillip Veter. College	47
Manning Auto Specialty Co.	50
Milliken, Jno. T., & Co.	37
Missouri Valley Serum Co.	52
Moore Bros.	48
Mulford, H. K., Co.	9
Pammel, L. H.	30
Parke, Davis & Co.	1
Pasteur Lab. of America	44
Peoria Serum Co.	39
Pitman-Moore Co.	4th cover
Purity Biological Laboratories	34
Royal Serum Co.	16
St. Joseph Vet. College	47
Searle, G. D., & Co.	3
Sharp & Smith	2
Shelton Serum Co.	3rd cover
Sioux City Serum Co.	3rd cover
Sioux Falls Serum Co.	57
Smith, Martin H., Co.	6
Squibb, E. R., & Sons	10
Standard Serum Co.	60
Stock Yards Serum Co.	59
Swan-Myers Co.	25
Timmer, Joe, Co.	5
U. S. Surgical Supply Co.	59
Universal Serum Co.	40
Veterinary Specialty Co.	35
Wichita-Oklahoma Serum Co.	12

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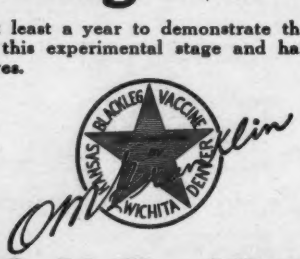

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VOL. XIII FEBRUARY, 1918 No. 2

The Veterinarian and the Law*

By HENRY BIXBY HEMENWAY, Evanston, Illinois
Author "Essentials of Veterinary Law"

IT is the duty of every citizen to know the principles upon which his government is based, and so much of the law as finds application to his daily life. Ignorance of the law is no excuse when trouble comes. In fact, ignorance leads to trouble and intensifies the annoying results.

Anglican lands use two kinds of law. What is known as the common, or unwritten, law is based upon the usages of society, and is interpreted and applied by the courts. The courts do not make the law, but one decision serves as a guide, or precedent, in future cases. This is to prevent covering the same ground twice. A precedent may be altered in future cases either as the result of bringing to the light some additional point, or because of changed conditions. A man may be indicted, convicted and punished under the common law. Enacted or statutory law is the crystallized work of legislative bodies, its special object being to clarify the consensus of opinion, or to provide for subjects not fully covered by the common law. Unfortunately, too many citizens imagine that the statutory law is all that need be considered. Without statutory enactment, by the common law it is a crime to kill a man, or to poison food, but by the enactment certain grades of crime may be provided with "punishment to fit the crime."

One of the most important principles of the common law is *Sic utere tuo ut alienum non laedas*, i. e., that a person must not use his property or powers in such a manner as to work injury to another, either in person or property. This principle is very wide in scope. It means, for example, that if a man claims to be a veterinarian he is in law bound to use his best endeavors to treat his patients in such a manner that they will recover in the most perfect manner, and in the shortest time. He has no right to experiment with animals left in his care, nor wilfully to depart from recognized modes of practice in a way to endanger them. This does not mean that he may not make advances in practice, but he should not change recognized methods without definite reasons therefor. This same principle draws a distinction between the veterinarian and the kindly neighbor. The fact that a man offers his services as a veterinarian is taken as a guaranty on his part that he has a suitable education, training and experience to fit him for the work. It is that for which he is paid. It is not sufficient that he has a license to practice. That of itself is not a guaranty that he is competent, but it is a guaranty that he claims competence. Competence means something

* Read at Thirty-fifth Annual Meeting of the Illinois Veterinary Medical Association, Chicago, December, 1917.

more than the holding of a diploma from a college, and a license from the state. It means further that he must know his business, and that he must use brains in his work.

But society recognizes that many ambitious persons are willing to assume obligations beyond their ability, and so in many states laws have been enacted requiring that before beginning to practice in any profession the applicant must present a diploma from a school of certain standing, and sometimes in addition he must pass an examination. The license is an evidence that he has thus shown sufficient qualifications to be permitted to enter practice. But science is advancing, and the fact that a man has learned all that is known in his profession at a certain time will be no excuse for his failing to keep on with his studies, and thus keep up with advancing science.

Suitable treatment of a case necessitates suitable equipment, and due care and diligence. If he performs an operation he must also give such further care as may be necessary. He is, in law, the judge of how many subsequent calls he should make. If his patron wishes to discharge him, the patron must run the risk of subsequent harm, but the physician may be held for injury already done. If the veterinarian wishes to drop the case he must give due notice, and ordinarily this will mean notice in time so that another practitioner may be obtained. The fact that a man is a licensed veterinarian does not mean that he must respond to any call for his services, but having assumed the care of the case he is under obligation to see it through unless formally released.

The professional man is entitled to reasonable compensation for his services. If he intends to charge more than the usual fee for such cases, as judged by the locality in which he is practicing, this should be clearly understood before he begins. Otherwise he will be entitled only to the ordinary fee. The quality of the service rendered is in no degree to be measured by the amount of compensation. The same degree of care and diligence is required for a charity case as for one in which an unusually large fee is granted.

Unless it be distinctly agreed beforehand, the assumption of a case is no guaranty of cure. It is expected that the practitioner will use his best endeavors and judgment in the case. If to save a few cents or dollars he buys cheap hog-cholera serum, for example, he will be held liable if the serum proves to be lacking in efficiency, or infected with some other germ. The measure of his liability will be the amount of harm done. Further, if while using his syringe he lays it down where it becomes infected with tetanus germs, or with those of suppuration, he will be held liable for the harm done. A veterinarian who is careless in his business, or who "runs the risk," should not feel injured if the law holds him to strict accountability according to the best ideas of science. In fact, it would be well for the profession if its members were more frequently thus taught their legal duty.

A veterinarian does not guarantee the drugs and sera which he uses, but he is expected to use due care and caution. If harm or lack of effect follow the use of a drug, and it be shown that the drug was purchased from an intinerant pedler at a price below the ordinary one, there would be a presumption of lack of care on the part of the purchaser. This presumption would be increased to practical proof if analysis of the supposed drug demonstrated that it was of different composition than supposed. The fact that manufacturers of sera are obliged to take out licenses is not a guaranty by the government as to the quality of the product. In fact, sera may be purchased which are not manufactured under government supervision. The serum may have been of full efficiency and quality, but because of lack of care in storage it may have become injurious or inert. Where harm results from treatment, as where hoof and mouth disease follows use of hog-cholera serum, the primary liability would be with the veterinarian. He may cast blame upon the manufacturer, but the veterinarian would not be personally free from liability unless he could show that he used full care and caution to purchase from a thoroughly reliable source.

The obligations and liability of the

(*Continued on page* 104)

Specimens for Laboratory Examinations*

By DR. MEYER D. MOLEDEZKY, Chicago
Director of Laboratory of Pathology and Bacteriology

THE question of laboratory diagnosis in veterinary medicine has become one of paramount importance, and especially so in the past few years, owing to the extremely unusual conditions produced by the war. Where, heretofore, the diagnosis of disease was limited almost entirely to its value in reference to therapeutics, today we realize more fully than ever that one of its greatest fields is that of prophylaxis. The diagnosis of any definite disease and especially those produced by pathogenic micro-organisms has been so definitely established that the question of the merits or demerits of a laboratory diagnosis is no longer debatable. A veterinarian can no longer justify himself or his acts in the condemnation of a herd of animals, be they cattle, sheep, hogs, or what not, by a cursory clinical examination, than can a physician in the examination and diagnosis of a patient.

The conditions brought about by the war have placed the responsibility of the conservation of meat animals and beasts of burden upon the shoulders of the veterinarian more than anyone else. The nation looks toward the breeder, and he in turn to his professional advisor, to see to it that no animal be needlessly slaughtered, and on the other hand that no negligence be incurred that may endanger the health and lives of those animals not already involved. A wrong diagnosis can easily be made by the use of clinical findings only. A simple laboratory examination could demonstrate without a shadow of doubt the exact nature of the condition with which one is dealing. It is needless to point out that an incorrect diagnosis of an innocent ailment may result in the loss of large herds of animals, the quarantine and isolation of large districts of breeding country, and thus irreparable damage to owners and the nation result.

On the other hand, the failure to diagnose some of our infectious and contagious diseases may result in the spreading of disease among large numbers of animals, and the injury does not cease at that point, as these animals may and do become transported to other parts of the country, infecting and reinfecting and resulting in losses innumerable and unjustifiable.

If from no other point of view than this, the diagnostic laboratory looms up as the most important criterion of the nation's welfare, the greatest aid to the veterinarian and the salvation of the owner.

And now permit us to call attention to another point of view. Your veterinary journals endeavor to keep you constantly posted with the latest and most modern advances in veterinary science. Eminent men in your profession are constantly writing their experiences and clinical cases in order that each of you individually may benefit by the observation of all of you collectively. If you have an interesting case which you feel justified in publishing so that your fellow practitioners may benefit thereby, how much more enlightenment could you give to them and how much more satisfaction to yourself were you to have a laboratory diagnosis corroborating and confirming your clinical findings. Anthrax, hemorrhagic septicemia, contagious abortion, glanders, tuberculosis, hydrophobia, black leg, Johne's disease, and numerous other diseases can readily be diagnosed by the laboratory. A simple culture, smear, tissue examination, complement-fixation test or the examination of secretions, excretions, and body fluids could determine these and other conditions beyond the question of a doubt, relieving you of the responsibility necessarily evolving upon you and confirming absolutely your diagnosis, thereby enabling you to take such measures as may be indicated. The laboratory is your support and guide and should be exploited by you. No man is

* Presented at Thirty-fifth Annual Meeting, Illinois Veterinary Medical Association, Chicago, Dec., 1917.

infallible and none can hope to always differentiate the various diseases which he is called upon to treat, successfully and without error, unless that man calls to his aid a technician whose training in the scientific field of pathology and bacteriology enables him to state without reservation the exact status of the condition in hand.

The doctor of medicine has long realized the pressing need of a laboratory, and the scientific men in that profession would not think of making a diagnosis without the aid of the scientific laboratory. And remember, gentlemen, that in treating human ills the physician has the advantage of being able to speak, converse with and question the ailing patient, which in itself offers him an invaluable aid. You are confronted with the treatment of dumb animals. Your decision must be drawn almost entirely from your observation of the animal at the time of examination or the history given by the owner. You, therefore. more than the physician, must of necessity depend upon the clinical laboratory for aid in the diagnosis of pathological conditions.

Another word which would probably be fitting at this time is that in reference to the use of vaccines. How is it possible for any veterinary practitioner to order and administer vaccine therapy to any animal or group of animals unless that practitioner has previously determined exactly what micro-organisms are involved? The naked eye cannot recognize bacteria and to indiscriminately inject an animal with one group or species of bacteria when in reality the causative factor is another, is wrong. Of what use to give streptococci vaccines in a staphylococcic infection? Of what use is either of these organisms in an anthrax infection, etc? Furthermore, the same applies to the use of serums. Unless the specific exciting micro-organism is isolated and demonstrated by a reliable clinical laboratory all your efforts in the direction of vaccine or serum therapy will have been for naught and instead of accomplishing that for which it is intended, produces trouble by the mere fact that mistreatment instead of proper treatment of the disease has been instituted.

And now permit me to call your attention to another important factor pertaining to this field of work, i. e., the method of obtaining and transporting material to the laboratory for diagnosis. Specimens for bacteriological diagnosis, and especially where cultural examination is desired, should not be sent in preserving fluids. It would be better for the veterinarian to write to the laboratory requesting that culture media be sent to him. Where delay is inexpedient, the specimen of tissue, pus, or whatever it may be, should be sent in sterile mailing containers, accompanied by a brief history of the case and a statement of the nature of examination required. In sending blood for complement-fixation tests or for bacteriological examination, no preservative should be used. Sterile mailing containers must be used under all circumstances to avoid contamination, and these can be had for the asking from your laboratory. Tissue, on the contrary, should be sent in 10 per cent formalin. Smears should be forwarded by interposing pieces of cardboard or match stocks or some such substance to prevent the rubbing together of the surfaces, then packed in a manner to prevent breakage. Laboratories will supply regular cases for these purposes on request.

Tissue for bacteriological cultural or histo-pathological diagnosis may be packed in sterile table salt. Packing in ice in metal containers similar to thermos bottles is excellent but cumbersome and expensive.

Unless such directions are followed, it frequently makes it impossible for the laboratory to carry out the examination desired. It can readily be understood that a specimen mailed for bacteriological diagnosis requiring culture would be useless were it mailed in a preserving fluid which killed the organism, or in unsterile containers which resulted in contamination.

The bugbear of many busy practitioners is the apparent maze of very intricate problems with which he is confronted when he thinks at all of the scientific

(*Continued on page* 94)

Mixed Bacterial Diseases of Swine with Differential Diagnosis*

By J. D. REARDON, Peoria, Ill.

DISEASES of swine other than cholera have in the past been given little consideration as to therapy that was either specific or practical. Many conditions have been considered types of, or sequelae of hog-cholera, with no other specific consideration.

As a preliminary statement I wish to define hog-cholera as an acute, specific, contagious and infectious disease of a septicemic type, to which 85 per cent of all swine are susceptible regardless of health or resistance to other infections. Uncontaminated hog-cholera infection runs an acute course, with death on schedule time, or recovery after a certain definite reaction.

Regardless of the statements of many authorities chronic hog-cholera in my opinion does not exist. In explanation of this statement I will say that the cases which are or have been considered as chronic hog-cholera are those in which recovery from a cholera reaction would have resulted, but this reaction by lowering the resistance of the animal, made possible an invasion by the organisms of the mixed infection group, causing the various pathological changes diagnosed as chronic hog-cholera. These cases may live for weeks. There will be some deaths and some recoveries; the animals which recover are usually stunted or unthrifty. The pathological evidence of hog-cholera is that of a septicemia. Septicemia is a disease that is characterized by the causative factor of that disease multiplying and existing in the blood stream. The lesions of hog-cholera are hemorrhages on the serous and mucous membranes, petechial hemorrhages in the kidneys due to ruptured glomeruli, circumscribed hemorrhages in the glandular substance of the spleen, hemorrhagic areas in the lymphatic glands, ecchymotic hemorrhages in the lungs, etc., such hemorrhages becoming more extensive as the disease progresses.

*Presented at the 35th Annual Meeting of the Illinois Veterinary Medical Ass'n., Chicago, Dec., 1917.

When lesions of pneumonia of any type, or intestinal ulcerations exist, or other pathologic changes are present, there is evidence of invasion by the mixed infection organism, such as Pneumococci, B. suisepticus, B. coli, B. suipestifer, staphylococci, streptococci etc.

Our adoption of the term mixed infection of swine is due to the fact that all the cases studied in various sections of the country, have culturally revealed mixed infections, and even in the varying types, the organisms present, existed with a regularity that proved them capable of producing many pathologic changes due possibly to varying degrees of virulence in the respective cases or to the varying degrees of resistance in the individuals attacked.

Only in rare cases has there been evidence of these mixed infections being directly communicable from diseased swine to other swine on the same premises. There is in nearly every case a history of some predisposing influence such as exposure, dietary disturbances, insanitary measures in minor surgical procedures, etc. Exceptions to this may exist in outbreaks of mixed infectious pneumonia and necrobacillosis in sucklings which on some premises appear regularly with each farrowing and is probably due to the extreme virulence of the infection or to the immature age of affected animals, or both. Even in herds where the very best care is given to the pigs and brood sows, this trouble has appeared in every lot of pigs farrowed for the past year and probably for several seasons past but undiagnosed. The conditions or diseases we wish to consider under mixed infections of swine, have been discussed to some degree by Hutyra and Marek, but contrary to our findings, they have classed them as rather specific infections. For instance they describe swine plague, a disease the result of infection with B. suisepticus, enzootic pneumonia of pigs (chronic

swine plague), pyobacillosis of hogs (infection with Pyobacillis suis), each as being a specific infection, but we have not found such to be the case in a single instance. Necrobacillosis has up to date been given very little consideration but is proving to be one of the most disastrous diseases that affect swine and especially young animals. B. suisepticus individually is a rather benign organism and only becomes destructive when it has the proper associate organism, B. necrophorus also becomes capable of producing any number of diseased conditions when associated with certain organisms. For the reason that associate infections, apparently obligatory in many instances, exist in all cases, the term "mixed infections of swine," seems the only technically correct one for such diseases or diseased conditions as are a result of infections with the organisms of the mixed infection group.

Of the pulmonary types of mixed infections, we have to consider the following conditions:

Chronic bronchitis, characterized by cough, impaired appetite, stunted unthrifty conditions, temperatures usually normal, a condition usually following an acute predisposition in a herd with some deaths at the onset. In this type of infection there is evidence of a persistent auto-intoxication which prevents the growth of the affected individuals and where this infection is present at the time of serum-virus vaccination, the affected animals are commonly said to have been stunted by the vaccination. This type of infection exists in young animals, is usually chronic but under certain conditions may become acute with pneumonic complications and a high death rate.

Pulmonary edema, a type of pulmonary mixed infection of sudden onset, attended by difficult respiration, high temperatures, extreme depression, and often death in 12 to 24 hours after the illness is noted. The lesions of this type are characterized by edema of the lungs, the lung tissue being changed but little as to color, the affected portion having the appearance of an old hepatized area in which resolution is nearly complete. The edematous portion of affected lung or lungs, pits on pressure, and when incised, a clear fluid exudes. Rarely is there any pleural exudate present in this type. Death occurs from asphyxiation and auto-intoxication. This type has been found in swine, from sucklings to hogs one year old.

Catarrhal pneumonia and pleuropneumonia are the more prevalent types of pulmonary mixed infections found in larger swine and especially in animals shipped for feeding purposes from the large market centers. In rare cases these types are transmitted by the affected swine to the swine already on the premises without any apparent predisposing influence on the native hogs. The symptoms of these types are in accord with the existing pathologic changes which have taken place: sudden onset, high temperatures, extreme depression, labored breathing, auto-intoxication. Death often occurs in from a few hours to two days after discovery of the disease. The lesions in the lungs are a typical catarrhal pneumonia, viz., areas of hepatization of all stages, pus formation, often an entire lung being a cheesy mass, necrotic areas, and when the pleura is involved, pus formation and also numerous adhesions which when broken down reveal necrotic areas with cavities in lung tissue. In this type of infection some of the first animals that die will show a pericarditis with the pericardial sac filled with a clear amber exudate from which B. pyocyaneus in nearly pure culture may be obtained. These particular cases show evidence of extreme auto-intoxication and usually die in a very few hours. Croupous pneumonia associated with hemorrhagic lesions similar to hemorrhagic septicemia (bovine), acute in character, of sudden onset and true to all septicemias, produces death in from a few hours to two or three days.

In some instances the pneumonic lesions are rather slight, the hemorrhages are present on serous and mucous membranes, kidneys, spleen, lungs and heart. The lymphatics show diffuse hemorrhages surrounded by glandular tissue normal in color but having an infiltrated slimy appearance. This type because of the hemorrhagic condition, is liable to

be confused with hog-cholera and a wrong diagnosis made.

Differential diagnosis is based on: first, the extensive hemorrhages after very short duration of the disease, while in hog-cholera the hemorrhages become extensive only after prolonged illness. Second, difference in the hemorrhages especially noted in the lymphatics, hog-cholera lesions being circumscribed with the tissue of the glands showing no infiltration. Third, this type of infection occurs in vaccinated swine known to be immune to hog-cholera as well as in non-vaccinated swine. This type of infection, especially the hemorrhagic septicemic type, has been found to be due to specific streptococcic infections, which prove very virulent in animal inoculations.

Other cases of pulmonary infection exist in which the pathologic pneumonic changes found are not indicative of enough tissue destruction to cause death. In these cases death is due to toxemia, the organisms present being productive of virulent toxins which produce extreme depression, weakness and death in from a few hours to a few days.

Necrobacillosis. B. necrophorus has been known to be the specific cause of numerous diseased conditions of domestic animals—necrobacillosis, the so-called bacillus of necrosis.

In our study of swine diseases we have discovered this very resourceful organism along with its obligatory associates to be the cause of numerous diseased conditions heretofore not mentioned by any authority known to us. Associated with its obligatory associates and other organisms of the mixed infection group, diseases and diseased conditions of swine are produced, which from all the knowledge possible to be obtained, are and have been considered, as heretofore stated, lesions of hog-cholera.

The more commonly known diseases coming under the term necrobacillosis will be considered first, all of which are as a rule chronic conditions.

Necrotic stomatitis, usually affecting sucklings, but sometimes mature animals, is a necrotic sore mouth characterized by necrotic ulceration of lips, tongue and buccal mucous membranes. The labial lesions externally, consist of necrotic areas hidden under dried exudate forming scabs with marginal areas of pus and exudation; internally on oral mucous membrane, the lesion is that of a coagulated diphtheritic exudate surrounded by an inflamed margin. Removal of the scab from the external lesions or coagulated material from the internal lesions, reveals an area of distinct necrosis with the characteristic odor of B. necrophorus. As a result of this condition, often tissue destruction is of such extent that the teeth are left exposed, feeding is impossible due to pain and impaired prehension and deglutition and death results from intoxication and starvation.

Necrotic pharyngitis, necrotic esophagostitis, and necrotic gastritis are more rare and may be the result of extension of the disease, necrotic stomatitis existing in older animals most frequently. The lesions of these conditions are similar to the lesions of necrotic stomatitis, death is due to impaired functions and intoxication. Necrotic enteritis or necrotic intestinal ulceration has been considered a lesion of chronic hog-cholera by nearly every authority that has written of, or discussed swine diseases. The ulcerative lesions of this disease are found in the large intestines usually (very rarely in small intestines), and consist of an accumulation on the intestinal mucous membrane of a coagulated diphtheritic exudate, with a thickening of the intestinal wall which sometimes has the firmness to resist the usual collapse of the empty bowel. The ileocecal region is most often the original seat of infection, extension of the disease often involving the entire large intestine. Nearly always associated with this disease are hemorrhagic areas in the lymphatics, differing from the hemorrhages of hog-cholera by being non-circumscribed irregular shaped diffuse hemorrhages, the odor of B. necrobacillosis always being present. The symptoms of necrotic enteritis are an impaired appetite followed by rapid emaciation, the affected animal becoming gaunt, tucked up in the flanks, arched back, and with a stilted gait probably

due to abdominal pain. Evidence of disturbed nutrition and toxic depression becomes evident with death as a result of starvation and intoxication. This type of necrobacillosis affects sucklings and pigs up to 60 to 100 pounds but is rarely found in animals of larger size or age. The course of the disease may be from a few days to two or three weeks. Necrobacillosis also exists as an acute disturbance, and often, contrary to all previous knowledge of B. necrophorus, it exists in apparently an acute septicemic type.

This type affects swine of all sizes up to one year of age, perhaps in older animals, but it has never been observed by us in animals older than one year. The symptoms of this type are sudden appearance of illness, high temperature, loss of appetite, weakness and toxic depression, death occurring in from 36 hours to two to four days after the first observation of illness. The pathologic findings are those of septicemia consisting of hemorrhages on serous and mucous membranes, in the lymphatics, kidneys, lungs, and rarely the spleen.

The mucous coat of the intestines and especially that of the large bowel is studded with minute hemorrhagic areas; often the bowel content is of a chocolate color as of decomposed blood from a direct hemorrhage from the mucous membrane into the bowel.

These lesions are differentiated from cholera lesions by virtue of being diffuse and non-circumscribed, and especially is this possible in the kidneys, here the hemorrhages are irregular in shape, often fusing together, appearing very different from the ruptured glomeruli found in hog-cholera hemorrhages. Further diagnosis is made possible by the presence of the characteristic odor of B. necrophorus in the incised lung, liver and in the intestines.

Necrobacillosis exists as an acute disease in sucklings and sometimes in older hogs, being in most cases associated with pulmonary disturbances; however, the pulmonary lesions are sometimes very slight. Occasionally in these cases slight oral necrotic lesions exist. The pneumonic lesions consist of hepatized segregated lung globules, surrounded by normal tissue, B. necrophorus and its associates being present in the bronchi, bronchioles and lung tissue. Symptoms consist of coughing, emaciation and weakness and death from toxemia rather than from disturbed functions.

Other diseases or disease conditions found to be due to B. necrophorus and its associate organisms are a result of infections following castration, clipping so-called milk teeth in sucklings, cutaneous infections through skin abrasions, etc.

"Bull nose," a laity term very common in some localities, usually follows the clipping of milk teeth or tusks in pigs. Infection is made possible by bruising of the gums or loosening of the tooth and extended progress of the disease causes swelling of the snout and often necrosis exists in sloughing of the soft tissues and the underlying bony structures beneath.

In so-called "black tooth," where shedding of the temporary tusks does not take place, the loosened tooth predisposes to infection and resulting necrosis is due to B. necrophorus.

Areas of cutaneous and subcutaneous necrosis from infection of B. necrophorus through skin abrasions are not uncommon, (this condition most frequently being caused by animals biting the lesions of the affected animals and later fighting and biting their fellows. This condition may in a very few days be extended to a large per cent of the herd.

Necrobacillosis has been found affecting swine of all sizes and ages, the symptoms of which are very characteristic of foot and mouth disease as regards the action of the diseased animals, the lesions however not being characteristic. In these cases necrotic stomatitis exists and with lesions of the feet to the extent that the animals will not stand on their feet and when forced to move support the weight of their bodies on the carpal joints. Cases of this type have been observed which were so advanced that a sloughing of the feet had taken place with the articular surfaces exposed.

Of the disease and diseased conditions described, there exists many modifications of each and many instances of

complications with several types in the same herd.

Infected animals may exist in which pathologic destruction of tissue has progressed to the extent that physiologic functions have been so impaired that recovery is impossible even though successful elimination of the infection has been accomplished.

It was the aim of the writer in preparing this paper to bring before the practicing veterinarian the fact that swine diseases are numerous, and that hog-cholera is but one of the many destructive swine diseases they are called to combat.

Since bacterial therapy has become effective in the control of mixed infections in swine, and anti-hog-cholera serum is effective in controlling cholera, the practicing veterinarian may now successfully and intelligently treat the many diseases of swine, and thus "do his bit" in the conservation of the most important food-producing animal in the nation.

A New Vision of an Old Plague

By DR. BURTON R. ROGERS, Chicago, Ill.

MOST of the same old open tuberculous cows that infected the bulk of the 3,974,000 tuberculous hogs found by government veterinary inspectors in 1917 among 40,000,000 hogs reaching packing plants having federal inspection—are still back on certain unknown farms—a little worse than they were a year ago—associating with and infecting another 3,974,000 tuberculous hogs, and other cattle and pails of milk and human beings right now and will continue to do so next year and next year.

These hogs came from some of the 6,361,502 farms of this country from which our food supply comes. The vital problem is not with the tuberculous hogs, *per se* (government inspectors promptly dispose of them), but with the living tuberculous cows, the original source of the infected hogs and milk, that are still back on the farms. They constitute the real problem and danger. The hogs are simply the signal—the signboard pointing to the perennial spring of infection.

Aside from the immense risk to, and loss of human life which is paramount, the pure economic import of the matter is emphasized in the following quotation from Secretary of Agriculture Houston: "The problem of eliminating tuberculosis from farm animals in order to prevent losses estimated at $25,000,000 a year in the United States is the greatest problem confronting the livestock industry of the country."

Statistics show that the number of tuberculous hogs tanked in 1917 was equal to 53 train loads of hogs of 40 cars each. In 1915, 328,000 hogs were tanked for disease and removed from the meat supply. This is more hogs than any one of seven certain states produce; and more than the combined total of seven certain states. These hogs would maintain an army of several thousand soldiers for a whole year. Open-mindedness to every plan of alleviation is desirable and imperative.

Fig. 1. The hog association test. Healthy cattle—healthy hogs. Open tuberculous cattle—tuberculous hogs.

Because most hogs are marketed at

less than one year of age, during the calendar year 1918, most of the 6,000,000 farmers will market some hogs, and of the 60,000,000 hogs now out on the farms, about 40,000,000 will reach the packing houses where government inspection is maintained and the inspectors will find over 3,000,000, probably 4,000,000 tuberculosis hogs before January 1, 1919.

If every farmer, immediately after he has loaded his hogs into his wagon to take them away from the environment and cattle that they have spent their lifetime testing, and starts them into the channels of trade, could be induced or required simply to lean over the wagon box and snap an approved tag or mark in the ear of each hog showing the owner's name and address, we could immediately trace back all hogs to their source and by education and co-operation with the farmer in finding the cows help him control and eradicate the disease in an approved manner for his own best interests and that of the whole country.

The tuberculous person coughs up and spits. We have anti-spitting laws against everyone, because tuberculous sputum contains tuberculous germs in numbers, proporticnate to how far advanced the case is.

But the tuberculous cow when she coughs up tuberculous material cannot spit, but swallows it as some people do, and as she always does her cud. The germs pass out with her feces. Shroeder found 40 per cent of reacting cows passing tubercle bacilli in feces—and one passing 35,000,000 germs daily on a basis of 30 pounds of manure. There are no doubt worse cases and the worst cow is out "somewhere" on some unknown farm. Hogs eat feces, and become proportionately tuberculous.

The mother sow shown in Figure 2 has been eating the feces of this cow ever since she was as small as the pigs—and the pigs, until they are as old as she, will be eating the feces—and—if, after a lifetime of such association and testing, the hogs are found free of tuberculosis at slaughter and inspection, I would not hesitate to feed the cow's clean raw milk to the most precious baby in the world, or to put her with the most valuable herd in the world, even if she reacted to tuberculin. But—if tuberculosis was found in the hogs after slaughter and inspection, I would not want anybody's baby to get a drop of unpasteurized milk from this cow, or to allow her to associate with any healthy cattle or hogs, and menace them, and the farmer. Yet 3,974,000 hogs were positively found tuberculous last year.

Cows lie down in manure, which drying from the heat of the body and during the commotion of milking, particles drop as dust into the open milk pails. Illinois university experts found that an average of 578 and in December as many as 2,900 germs of various kinds get into milk during each average milking. They found tubercle germs in 502 out of 7,397 samples of market milk and in 163 out of 1,233 samples of butter. If the estimates of federal experts are correct, that 10 per cent of our 21,000,000 cows are tuberculous and 40 per cent of these, or 840,000, daily pass an average of 30 pounds of tuberculous manure, the portion of that immense amount that gets into milk and is consumed by children and adults cannot be considered insignificant or ignored.

The white cotton discs, (Fig. 3,) through each of which a pint of market milk has been strained, graphically indicate the amount of dirt (mostly manure) that can and does get into milk. In the aggregate this could easily make the total of at least ten pounds of tuberculous manure that daily gets into the milk of 840,000 open tuberculous cows.

For the sake of humanity it is hoped physicians, sanitarians, scientists and others (including those who have not given the matter much thought) will be as open minded and impressionable as the day they entered school, or in narrowed researches, formed certain opinions, conscientiously given, acquired and built up and will tem-

porarily lay aside their opinions and consider all these facts.

An official abstract of the Illinois Station Bulletin No. 161 states that all "types" of tubercle bacilli exposed to direct sunlight in thin smears, were killed in 1 to 4 minutes, and when exposed to desiccation in a dark, well ventilated place, human tubercle bacilli were dead in four days and bovine in eight days. Recalling the fact that the viscid mucilaginous character of sputum is such that it is glued in thin transparent layers to the floor, and generally held and exposed to the light for much longer periods than are necessary to kill tubercle bacilli before they become part of the dust and inspired air, may modify

Fig. 2. Baby pigs testing the cow for safety for human babies.

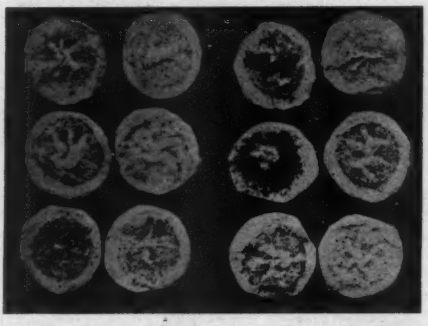

Fig. 3. Cotton discs showing findings of sediment tests.

the past views of many open minded men.

If conditions compelled him to do one or the other, would the true scientist choose to expose his susceptible child in a room with a careless open case of human tuberculosis, or to have the child drink its usual portion of milk, into which the worst of the above cotton discs were knowingly returned? Which?

Isn't it peculiar that the bovine "type" is so frequently found in children, and the human "type" in adults? What became of the bovine "type" in the children of 25 years ago, but which when examined today is found to be not bovine, but the human "type?" Did the bovine "type" disappear, and reinfection with other foreign human "types" occur, or during long years of residence did the "type" change? What type will be found 25 years from now in these children in which the bovine type exists today. Think it over and we may forget "type" and save life.

There is opportunity for as interesting an error regarding an "airborne" infection as occurred with the miasma of yellow fever.

I firmly believe and feel it my duty to say that if it had not been for the strong and successful efforts of Straus, certified milk commissioners and others for clean, or pasteurized milk and inspected meat to partially offset the increase in tuberculous cows, we would today be suffering from a real epidemic of tuberculosis. Early recognition and approved treatment has also reduced the death rate. Future mortality historians may reverse some credits now held.

Looking at the next picture (Fig. 4) —did this tuberculous man 20 years ago, either out in the country or in the city, as a baby or child, get his primary infection (Fig. 5) from milk infected with particles of the same tuberculous manure from the same tuberculous cows that infected the manure that infected the tuberculous hogs that government inspectors found (Fig. 7) in the packing plants 20 years ago—

Note—Dr. Rogers recently secured a series of pictures for cuts and lantern slides showing the life histories and farm environment of hogs from birth to slaughter and inspection; and milk from the farm to consumer. Anyone desiring any of the pictures or slides may obtain them from Mr. J. C. Allen, Lafayette, Indiana, who has the original negatives.

who knows? That is looking backward at the irreparable past.

Now looking forward! Who knows how many of the thousands of babies and youngsters are right now drinking the raw unpasteurized milk from the very same tuberculous cows and herds, that are infecting the over 10,000 tuberculous hogs government inspectors are now finding daily in the packing houses of this country—and the germs lying intermittently dormant and active—5-10-15-20-25 years later (after many of the young people will have gone to the cities), the germs finally sicken and kill them as shown in Fig. 4? Who knows?

And yet—those cows could be located within a year, if farmers properly marked the hogs they market. Today the problem is on 6,000,000 farms, and if only 10 per cent have the disease, the problem would thus be reduced to 600,000 known surveyed farms.

And who knows how many of the 101,396 people in the United States who died of tuberculosis last year—

Fig. 4. More than 100,000 persons die in the United States every year from tuberculosis. The percentage of this vast number who acquire the infection in childhood with the food ingested, is speculative; but, certain it is that in the aggregate the number who thus acquire it is large, and to this extent tuberculosis of man is a veterinary problem. It lies with the veterinary profession to recognize and point to the source of this infection and arouse the public to the end that it be eliminated.

May not the young man shown above, who died of tuberculosis in a city, at the age of twenty-seven, have acquired the infection out in the country, in the manner shown in Figure 5.

of the 75 per cent said to have tuberculous lesions—of the 500,000 young men 21 to 31 years of age rejected in the first draft because of tuberculosis—of the unknown thousands who have died during the past 31 years, some 30 years ago as babies, and some last year at 30, and all ages between, who had

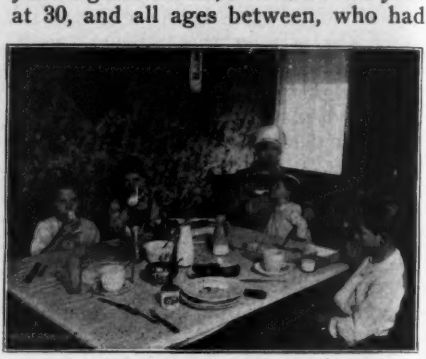

Fig. 5. Day after day, week after week, and month after month, countless numbers of children are ingesting the germs of tuberculosis with unpasteurized milk, that comes from cows that are being tested throughout their lives for tuberculosis by generation after generation, of hogs raised on the same farms, as shown in Figure 6.

they lived would have been of draft age—the loss of all of whom weakened our war and genius and industrial man power, and whom we need today—how many of these got their primary infection from the same tuberculous cows that have been infecting the millions of tuberculous hogs found by government inspectors during the past thirty years?

The consensus of opinion is in favor of the testing on every farm for tuberculosis—but let us realize and take advantage of and supply the simple missing link of a test that is going on right now on the 6,000,000 farms of this country, wherever hogs and cattle are (or can) associate with each other in the same pens or pastures (Figs. 1 and 2).

The pig and hog, under present agricultural practices, working night and day during its entire short lifetime of less than a year, is a more practical and scientific tester and detective, than any human inspector or expert, the decision of the pig being recorded on his own post-mortem and life sacrifice in commerce. Did God give the pig its habits for our protection?

Looking backward on a prophetic statement made about fifteen years ago,

and since it proved true, I feel justified in reprophecying it, viz.:

On the farms of this country right now are a definite but unknown number of living tuberculous animals. In the course of time a large number of these will come to the packing plants and be bought unconsciously at full market values by the packers. It may be fifteen years from now (1933) when the last one gets in—at which time there will be just as many more back on the farms—due directly or indirectly to those that are out there now—and they too, in an endless chain will be bought at full market value by the packers. In addition fifteen intermediate generations of tuberculous hogs will also be born, infected and bought.

If the farmers did their part, either voluntarily or because required to do so by law, and tagged every marketed hog with the name and address of the man who raised him, and the dangerous herds thus automatically located, and the government or local veterinarians found the individual tuberculous

Fig. 6. On millions of farms in the United States a conclusive test for tuberculosis is being made every season. Wherever hogs are being raised on the same farm with cattle feeding on unpasteuriezd milk, they incidentally but accurately test the cattle and report unmistakably the existence of cases of open tuberculosis among cattle, as shown in Figure 7.

animals in each herd by tuberculin or individual hog tests, would it cost the packers any more to consciously and cooperatively (with the government) buy those animals right now at full market values, and get them off the farms and under control, and at central points retest and recheck the tuberculin reacting valuable animals with individual hog tests of the cattle and their manure and other secretions? This would divide the reactors into groups on a basis of the degree of open tuberculosis as shown by the hog autopsies. This would conserve many safe

Fig. 7. Day after day, year in and year out, trained veterinary pathologists find 10,000 hogs infected with tuberculosis and ever as these infected animals pass under the inspector's eye, the question arises: Whence? It is well known that tuberculous hogs owe their infection almost exclusively to tuberculous cattle. Ten thousand hogs daily, as they pass the inspector, say:

"Back there on the farm on which I was raised there are open cases of tuberculosis among the cattle. These cattle are infecting a new crop of hogs now as I was infected last year and as another new crop will be infected next year, and the next." On all the farms in tthe United States 40,000,000 hogs are infected by the milk and the feces of tuberculous cattle, an appalling waste of food, but more than all, an appalling waste of human life, for the milk contaminated with feces, as all ordinary market milk is contaminated, that will infect a hog will infect a child.

Let us go from the infected hog, as shown in this illustration, back to the infected cow, as shown in Figure 6, and stop the infection of the children shown in Figure 5, and prevent the death of the unknown but certain, and I believe very large percentage of the more than 100,000 persons in the United States who die annually of tuberculosis, like the poor fellow shown in Figure 4.

tuberculin reacting valuable animals of good blood and strain for increasing cattle and beef production as a war measure.

Following out the above, I know of no way in which more could be accomplished in the location, control and eradication of animal tuberculosis and in gaining the good will and cooperation of livestock men, than for every experiment station and state veterinary department to conduct a demonstration experiment and take an appreciable number of tuberculin reacting cattle, mobilize them in separate temporary pens, each pen large enough for one

cow and one or two healthy pigs. The pigs could be freshly weaned or possibly of an age or time prior to a definite market or slaughtering age.

Or the reacting cattle could be allowed to run together outside, but be stanchioned in the same stalls at night and only the pigs kept in separate pens. The night feces of each cow could be carried with separate shovels or containers and fed to the specified pigs during the retest and recheck.

About once a week the feed box of each cow could be washed with clean water and the water be given to the corresponding pig with occasional quantities of first milk, thus testing every secretion and excretion avenue.

In about six weeks, or within two months at most, on a definite date the veterinarians, officials and farmers should be invited to attend and observe the final slaughtering.

The pigs and cattle could have been previously reinjected with tuberculin at the proper advance period to possibly show a second reaction on this date.

On the afternoon of one day, or on the morning of the same day (depending on the number and daily capacity for killing the hogs and cattle) slaughter the hogs.

As a result of the degree of the lesions (if any) in the post-mortem findings, prophecy the degree of the lesions in the cattle before slaughter. The next morning or the same afternoon slaughter the cattle, and I am confident the prophecies will be confirmed by the autopsies on the cattle, and that every farmer will be convinced and will tag his marketed hogs with his name, and if notified they were tuberculous, he will immediately have his cattle tuberculin tested. If worth it he will make arrangements for rechecking and retesting with individual hog tests. An exact cost accounting of the labor and expense of the rechecking experiment should be conducted in order to establish a standard upon which to base its application in any herd.

One man alone could handle a large number of cattle, and the saving of a single pure-bred animal might pay for many months of such labor. Farmers will doubtless need some education as was the case in the introduction of vaccination.

In the interest of the state, cow production tests should be carried on to determine their real value, with the possible idea of establishing a system of replacing them with equally valuable animals instead of cash. Nothing needs systematizing more than the expenditure of state money for indemnification. The animals should become the property of the state and be handled as economically as possible. Veterinarians could then offer some recourse other than heartless and ruthless slaughter of all the reactors, and could then render the additional intelligent service veterinarians owe their clients, with profit to both and the country as well. The veterinarian could do this on the client's premises, or to save the client trouble could mobilize reactors from several clients in hospital fashion, or on a county community plan. Dr. J. I. Gibson has suggested that each pure-bred stock association could handle their own breed under the supervision of official veterinarians. A similar state demonstration test should be made in herds where they are continually having subsequent reactors, to find and demonstrate possible non-reacting spreaders.

Bureau of animal industry post-mortem inspectors, either alone or in conjunction with the pathological department, could conduct experiments along opposite lines by taking hogs and cattle showing all degrees and variations but recorded post-mortem lesions of tuberculosis and quantitatively microscopically examine the feces and ingesta at definite and variable portions of the intestinal tract. I have long wanted to learn of the numerical record-breaking count per pound of feces.

Or Congress alone or in conjunction with some state might provide funds for a county demonstration experiment of a system of ear tagging all marketed hogs.

Vaccination of Hogs by the Peritoneal Method

By J. F. GILLESPIE, Tuscola, Illinois

THE peritoneal method may be used in, at least, ninety per cent of the hogs to be vaccinated. It is superior in many ways to any other method, the most important point, to the veterinarian, being that the method is simple from the veterinarian's viewpoint and yet it appears so complicated to the laity that it will not be adopted by them. The results obtained with this method are so gratifying that the deep muscular method, in the author's opinion, will be discarded, except where the hog is too large for the peritoneal method to be practical.

No county agent, quack or layman, will attempt to invade the peritoneal cavity in this work. He does not know whether or not he is injecting the serum into an intestine or bladder, or whether he may not touch some vital spot unknown to him. The layman is not satisfied in his own mind that the serum that he is about to use would not be fatal if injected into the peritoneal cavity, for he is prone to lay all bad results to the serum. He is not sure that his instruments are as clean and sterile as they should be to invade this cavity, for he is wise enough to know that through any fault in his technic, irreparable damage will result, for he has been taught from infancy that it requires an operator educated and skilled in the highest principles of science to invade such a field.

Will you as professional men adopt this method at once? No, there will be a doubt in your mind that such a method can be carried to the field and made practical. You may say that it looks well on paper, or that it will do to use in the laboratory, but that there is too much chance for infection to make it practical in field work.

Peritonitis is not so easily produced with a sterile serum as we are prone to believe. With sterile instruments and under aseptic precautions, as much as 100 cc. of serum may be injected into the peritoneal cavity of a hog, at a temperature of 45 or 50° F. without producing peritonitis, in an average of more than one case in ten thousand injections.

We do not ask you to adopt this new method at once, for no good practitioner will adopt new theories until he has satisfied himself as to their soundness. Every veterinarian who is using the serum today, has undoubtedly vaccinated small pigs in infected herds with the deep muscular method and after turning them loose, watched their painful efforts to hobble along, and with a feeling of pity wondered if there was not a more humane way to administer serum to these animals. If you do not wish to try the peritoneal method on an entire herd, try it first on the small pigs and watch the results, then when you become satisfied as to its merits you will soon be using it wherever practical, which will be in about ninety per cent of cases.

Let us compare, if you please, the deep muscular method with the peritoneal method as to results. In the former, the serum is forced into or between the muscles, tearing the delicate tissues, separating and tearing the fibers and pressing on the nerves, until the slow process of absorption removes the large doses of serum, leaving in its wake destroyed tissue to be repaired, resulting in serious lameness lasting from several hours to several days. When you visit a herd of hogs the morning after they have been treated by the deep muscular injection and find every animal so sore and lame that you must drive it from the sleeping quarters, does it appear to you that a man of science had been there the day previous? Cannot the county agent or the farmer put as much science into the deep muscular method as the veterinarian? Can he not make the pigs just as sore as the veterinarian?

With the peritoneal method you have a cavity sufficient to admit the largest dose of serum with the least inconvenience to the animal. As the serum is

readily heated to the bodily temperature, the chill to the animal is only transient. The serum is admitted to the circulation by the process of absorption in less time than would be the case in the deep muscles, the only wound being the small needle thrust in the abdominal muscle.

In treating infected herds with high temperature, the cold serum injected into the peritoneal cavity will reduce the temperature, temporarily at least, without leaving any bad results.

This simple method is both humane and scientific. Its use requires superior knowledge and training and careful work in the laboratory in preparing the serum. We may take the serum into the field and use it in a way that will bring the laboratory workers as well as ourselves into disrepute, or we may use it in a way that will put a stamp of approval on it with credit to our profession and without fear of competition from the laity, for we have gained the confidence of the client. The air of mystery surrounding the operation leaves the client with a feeling that he has employed and received the services of an expert and he is satisfied with the entire procedure.

This method will result in fewer failures, in fact they will be practically nil, for absorption will be sure, as the fibrous portion of the serum will dissolve in the peritoneal fluid and thus be taken up.

This article is not written on theory, but after six years' practical use of the peritoneal method as it has been worked out, and no ill results have followed its use. It is true that it is not practical in very large animals but it may be used in animals weighing as much as 150 pounds, and it avoids the severe lameness following the muscular method.

In using the peritoneal method, the hogs should receive a light feed the previous evening and should not be fed again until some time after treatment, when they should receive a light feed of bran and shorts. The feeding should be light throughout the reaction. However, it is not always practical or convenient to follow this rule and it has not been strictly adhered to, but it is advisable for those who have not previously used this method.

In using the peritoneal method the instruments must be thoroughly sterilized, for in this lies the secret of success. The pig is held by an attendant by the hind legs with the head down, with the abdomen facing the operator. The skin is cleansed and antiseptics applied by another attendant. The operator then inserts the needle through the abdominal muscle at a point about one inch forward from the pelvis and about the same distance from the median line, injecting the full dose of serum into the peritoneal cavity. To the left of the peritoneal cavity is found to be the preferable location, inasmuch as the small intestines are located there and the position in which the pig is held permits them to gravitate down so that they escape puncture by the needle, and in making the thrust to one side of the median line the bladder is not injured. The virus may be injected into the loose tissue of the flank and as the dose is not large enough to be more than an ordinary hypodermic injection it is readily absorbed and the wound heals rapidly.

The above is a reproduction of the service flag in the window of the Kansas City Veterinary College. The novel arrangement of the stars indicate that 230 alumni of the college are now in the veterinary service of the U. S. C. The figures in the flag are changed each month as the number in the service increases. This shows the number in service in January, 1918.

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Conflicting Meeting Dates

A GREATER number of veterinary meetings are held during January than in any other month and it would seem that those responsible for fixing the dates of these January meetings might profitably give some attention to the matter so as to obviate the holding of state veterinary meetings on the same dates in adjoining or nearby states.

It has sometimes been assumed by those arranging for meetings that the members of their association were not interested in any other meetings, hence no attention has been given to whether their dates conflicted with the dates of other meetings. Such a view is narrow and is becoming a greater and greater error with the increasing popularity of veterinary meetings, the wider acquaintance among veterinarians growing out of increased attendance at A. V. M. A. meetings, the greater diversity of veterinary practice consequent upon the decline of equine practice, and the increasing importance of dairy, sheep and swine practice, and the undeniable elevation of the standards of the profession. The majority of practitioners are now on the alert for new information on any subject pertaining to veterinary medicine.

Among the reasons that might be cited for avoiding conflicting dates of meeting for veterinary associations in adjoining states or even states in the same section of the country let us consider the following:

1. Many members of state associations in addition to their own meetings wish to attend the meetings of other state associations. The number who desire to attend meetings outside of their own state is larger than is generally supposed. Sometimes as many as a hundred and never less than fifty veterinarians from other states attend at least some sessions of the winter meeting of the Illinois Veterinary Association whose dates do not conflict with those of any other association. There are a number of reasons for this large attendance of visitors who do not attend other meetings; but there are attractions at each state meeting for veterinarians from other states. Take the Ohio meeting, to cite another example, it is always held at the Veterinary Department of the State University and it possesses a strong attraction for graduates of that school practicing in Indiana and who during college days formed many acquaintances with Ohio veterinarians.

2. Quite a number of veterinarians of some prominence in the profession are invited to attend meetings and have a part in the program in several states, and when two or more associations invite the same man to meetings held on the same dates some must be

disappointed. This occurs with great frequency, and as most secretaries are quite enthusiastic about the attendance-building ability of this "outside talent," as they term it, the matter assumes real importance not only to the man who cannot divide himself so as to appear at two or three or four meetings at the same time but to the association, perforce slighted, and having as a result a smaller attendance, fewer applications for membership, more delinquents among members and the other ills due to lack of interest.

3. The unnecessary inconvenience and expense to the commercial houses that make a practice of exhibiting their products at the state veterinary meetings is another important factor, it being borne in mind that this unncessary expense must ultimately be borne by the customers of these houses—by you and me. If there is any one who doubts that the commercial displays at veterinary meetings are a strong attraction and a distinct advantage to the meeting he need only stand by one of the popular displays for a few hours to be convinced of his error. If he doubts that the opportunity to see these displays and to discuss matters of interest with the representatives of the commercial houses is the deciding factor in bringing many to these meetings, he need but question those spending considerable time at the exhibits to find out that on the contrary no inconsiderable percentage of those attending the meeting would not be there but for the opportunity it gives them to see and to examine what is new and standard in instruments, in pharmaceuticals, in biologics to adjust matters of complaint with the representatives face to face, to procure information regarding certain products that had not been satisfactorily conveyed by correspondence; in short to meet those with whom they are doing business.

None of these commecrial houses can spare from their regular duties enough employes to be adequately represented at four meetings held at the same time, to say nothing of the cost of four complete displays. One meeting at a time, one line of samples and one set of representatives is far more efficient and more economical for these houses.

There is an advantage in these displays even to the man who does not practice and who buys not a dollar's worth of the products displayed. Veterinary representatives of these commercial houses usually attend the meetings where the displays are conducted. These are men of fine ability, and are possessed of up-to-date information of value to the profession. They must have unusual ability in order to procure and hold these positions which are among the best paying open to veterinarians, and they must keep themselves informed upon all that pertains to their field. Their contributions to the programs of meetings and to the discussions are of undoubted value.

To cite examples of state associations holding their winter meetings on conflicting dates take the states in the Mississippi Valley from Ohio to Oklahoma and from Minnesota to Mississippi. Heretofore the Ohio and Indiana, Iowa and Minnesota meetings have been held on the same date, the Michigan and Mississippi Valley meetings on the same dates and the Wisconsin meeting on the same date as the Missouri Valley meeting or some other near by. The Kansas and the Oklahoma meetings and the Nebraska and Oklahoma meetings have at times been held on the same dates.

Constitutional provisions fix the dates of some meetings, others are set by a vote of the association, and in still others the time of the meeting is left to the discretion of the officers, but even in those associations where the constitution provides for the meeting to be held on a certain date, there can be no insurmountable obstacle to such slight changes as would avoid conflicting dates; a postal card temporarily, and an amendment to the constitution in due course would solve the difficulty.

Without any desire to meddle in the affairs of any of the associations, we offer the following suggestions for a tentative schedule for next winter's meetings in the territory mentioned:

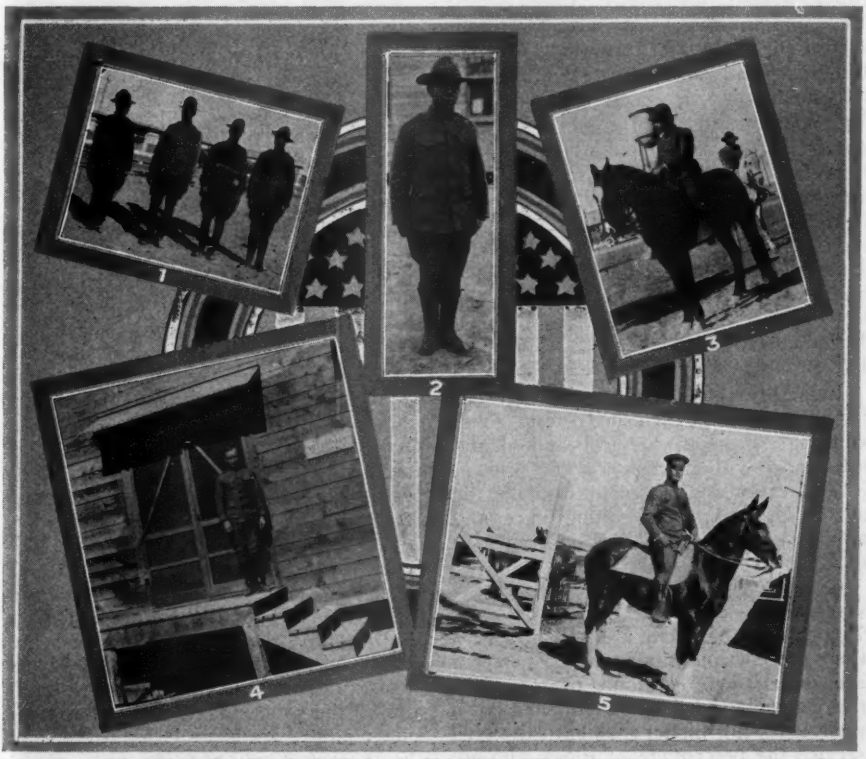
The United States Live Stock Sani-

tary Association on Monday, Tuesday and Wednesday, December 2, 3, 4. The Illinois Association at the same place on Wednesday, Thursday and Friday, December 4, 5, 6. The Nebraska Association, Monday and Tuesday, December 9, 10. The Oklahoma Association, Thursday and Friday, December 12, 13. The Kansas Association, Thursday and Friday, January 2, 3. The Ohio meeting, Monday and Tuesday, January 6, 7. The Indiana meeting Wednesday and Thursday, January 8, 9. Minnesota meeting, Monday, Tuesday and Wednesday, January 13, 14, 15. The Iowa meeting Thursday and Friday, January 16, 17. Wisconsin meeting, Tuesday and Wednesday, January 21, 22. Michigan meeting, Tuesday and Wednesday, February 4, 5. Missouri Valley meeting Tuesday, Wednesday and Thursday, February 12, 13, 14.

Army Veterinary Matters

News of the veterinary service of the army contains little out of the ordinary for the past month; there have been perhaps the usual number of transfers but few promotions. A few civilian veterinarians have been commissioned. Dr. G. B. McKillip, as a major and assigned to Camp Upton to organize a base hospital, the others as second lieutenants. Major McKillip will embark for France soon.

Major Bemis has been ordered to Camp Lee, Petersburg, Va., where with Major Blair and Captain Buffington three veterinary units are being formed for overseas duty. Captain Charles H.



1. Left to right, Drs. L. D. Nowell, C. W. Strode, Robt. Menzee, Robt. Vanskike, at remount depot, Camp Cody, Deming, N. Mex. 2. Dr. Louis Griessman, at Camp Upton, L. I., N. Y. 3. Dr. Severoic, of Chicago, at Ft. Sam Houston. 4. Dr. Lapple, of Cincinnati, at Camp Travers, Texas. 5. Dr. C. W. Moskau, of Troy, Kans., at Ft. Bliss.

Jewell has just returned from service in Hawaii and has been ordered to Camp Lee as Division Veterinarian.

Memorandum

Authority has been granted for the men for the Enlisted Veterinary Corps, National Army. These men must not be subject to the selective draft. Men from 18 to 21 and from 30 to 40 years of age are eligible for enlistment. They will be assigned to duty in veterinary hospitals and for other purposes in the Enlisted Veterinary Corps, National Army. Service overseas can be expected shortly. The following classes of men are desired:

Veterinary students, agricultural students, farmers, stablemen, and other men accustomed to handling horses.

A few men of the following occupations will also be accepted:

Horseshoers, saddlers, pharmacists, cooks, typists, or stenographers. All men are enlisted as privates, but at present there are exceptional opportunities for advancement to the grade of non-commissioned officer. The following are the rates of pay:

Grade	*Monthly Pay*
Sergeant, 1st Class	$56.00
Sergeants	44.00
Corporals	36.00
Farriers	36.00
Horseshoers	38.00
Saddlers	36.00
Cooks	38.00
Privates, 1st Class	33.00
Privates	30.00

In addition to the foregoing pay enlisted men are furnished with food, clothing, quarters, medical and dental attendance without cost.

Application for enlistment can be made at any U. S. Army recruiting office, and applicant should state that he desires to enlist in the Veterinary Corps.

On the whole, correspondence with the veterinarians in military service indicates 75 per cent of them are satisfied with their present conditions, and 25 per cent are dissatisfied. Among practitioners, the percentage who are satisfied with their lot is not higher; while in the civil service the percentage of those who are dissatisfied is much higher.

The correspondence published last month has elicited a considerable additional number of letters, but they add little or nothing to the information already published, the writers in not a few instances from the same camp holding widely different views.

During the month the writer visited Camp Funston, where about 20 veterinarians are stationed. Major Bemis, chief veterinarian of the 82nd division, is in charge at Funston, but was absent on leave at the time of my visit. Lieutenant Gale, who should be a captain, is in charge of the veterinarians at the remount station; the remount station being in charge of Major Schofield, a remount officer of long experience in the regular army.

The remount station is ideally located at present, on a sand terrain on the banks of the Kansas river. The location is protected, the drainage perfect, but one who has seen the whole site covered with several feet of water during high waters in the Kansas river, as I have seen it, must entertain doubts as to the wisdom of taking such a chance on what the river may do next May or June, or the next.

The number of horses and mules at Camp Funston is smaller than at many of the other camps, being only about 4,000. Of these, about 400 were in the hospital, an unusually large percentage, due in large part to the congestion of freight on the railroads, which had resulted in several car loads of recent arrivals from the West being delayed in transit from two to four days and exposed to very severe weather. More than 8,000 animals have been handled at this station in the three months since it has been established. The loss in the hospital for all causes has been only about 1.46 per cent, a truly remarkable showing for the veterinary service at the station.

The conditions at this remount are pretty much like those at a number of others that we have visited. They are short of help both in the corrals and in the hospital; the useful drugs that are supplied are pitifully deficient both in variety and quantity judged by the standard of the practitioner, and yet the results obtained are imeasurably better than the average in civil practice.

The good results can be explained by just two things:

SNAP SHOTS AT VARIOUS CAMPS.

1. Drs. R. S. Mourning and W. M. Roth, at Ft. Sam Houston. 2. Dr. John B. Barnes, of Manhattan, Kans., and a Red Cross girl at Ft. Sam Houston. 3. Drs. W. R. Wolfe, of Carolina and J. E. Kendrick, of Alabama, at Leon Springs. 4. Dr. James E. Noonan and a Red Cross lassie, at Ft. Sam Houston. 5. Drs. George W. Derrick and L. V. Murrian, at Camp Jones, Douglas, Arizona. 6. Drs. N. M. Neate and Chas. B. Dunphy, at Camp Jones. 7. Left to right, Drs. R. H. Sewall, R. O. Stott, Geo. Koons, C. W. Moskau, J. A. Welch, and M. A. Ryan, veterinarians at remount depot, Ft. Bliss, Texas. 8. Drs. Jas. Speery and Geo. Feazell, at Camp Jones. 9. Dr. Bright, of Solomon, Kans, and Dr. T. H. Ingham, of Alabama, at Ft. Sam Houston. 10. Dr. Robt. Sewall, of Hiawatha, Kans., at Ft. Bliss.

1. The sanitation, hygiene and nursing are perfect—no other adjective adequately describes them.

2. The veterinarians in charge of this work are tremendously in earnest, untiring in their efforts and wonderfully painstaking. They realize their responsibilities—they have caught the spirit of the army. They are working for the cause with which they have cast their fortunes as they have never worked for anything before. What they are accomplishing day by day will constitute an everlasting monument to efficiency in the service.

PRACTICAL VETERINARY PHARMACOLOGY AND THERAPEUTICS

Howard Jay Milks, D. V. M.
Professor of Therapeutics and Small Animal Clinic, New York State Veterinarian College at Cornell University, Ithaca, N. Y.
Pages, 518; well illustrated. Price, $4.25. Published by The Macmillan Company, New York.

This is a genuinely useful work and one that will be welcomed by students and practitioners alike. The author disclaims any particular originality in the material included but he must be commended for his diligence and patience in the selection of material and wise discrimination in that he has omitted.

An outstanding feature of the work is its brevity, a vast field being covered in the 500 pages of the text. We believe that some will think that the work of condensing has been carried to an unjustifiable extreme in the discussion of the actions and uses of drugs; elsewhere it is splendidly accomplished without the omission of vitally important details.

Much valuable information is included in this text that is not included in its predecessors in this field. For example, a more extended discussion of pharmacy than other texts on veterinary materia medica and therapeutics contain, a chapter on dispensing including directions with illustrations for folding powders and for wrapping boxes and packages. A chapter on prescription writing with rules for the formation of the genitive case and a list of Latin words and English equivalents is a useful portion of the work. A brief discussion of the history of therapeutics is of interest. A chapter on immunity, vaccines, serums and bacterins is a valuable addition to the work.

The drugs are discussed in a uniform manner, both the Latin and English names being given, followed by the synonyms. Then is given the source of drugs, the various preparations and the dose of each, the action, administration and use. Further, the various medicinal agents are grouped according to their principal action and some discussion of properties common to the group obviates repetition and facilitates condensing.

In discussing the therapeutics of the drugs the author exhibits a disappointing tendency to avoid taking any definite position but contents himself by saying it is probably used, etc., or some veterinarians have advocated, etc. The use of cannabis Indica intravenously is mentioned without a caution as to the danger in so using it. The Quitman method of using aromatic spirits of ammonia with chloroform and A. C. E. mixture in anesthesia is not mentioned, nor is the wide use of lobelin as a sedative in azoturia.

Dr. Milks has rendered rational therapy a great service in this work and a most cordial reception for it is assured.

LIVESTOCK ON THE FARM

By William Dietrich, B. S. A., M. S.
Head of the Department of Animal and Dairy Husbandry, University of Minnesota.
Pages, 269; 68 illustrations. Price, $1.50. Published by W. B. Saunders, Philadelphia.

This handy volume was prepared with two purposes in view: (1) to dispense information to those desiring to improve their condition by engaging in livestock farming, to farmers generally, and to those engaged in raising livestock; and (2) to serve as a textbook in agricultural schools and high schools.

The book does not treat primarily of swine husbandry, but it rather seeks to deal in a simple and practical way with the problems which must be met and handled promptly in the every-day work of handling livestock profitably.

From the study of grain-farming, which includes an extensive review of soil formation and the various soil elements needed for profitable crop production, the author proceeds to the subject of livestock farming, explaining the sev-

(*Continued on page 96*)

Department of Surgery

By MAJ. L. A. MERILLAT, Sr., V. C., N. A.

Pitfalls

No. 22—Whenever glanders is discovered among horses more or less hastily assembled in large herds it is generally found to have already made appalling inroads among them. In other words, the disease is not discovered until it has played havoc, until it has assumed proportions seldom seen under normal conditions. The ordinary private establishments owning large numbers of horses seldom suffer large losses from glanders if intelligent veterinary service is employed. The outbreaks are "nipped in the bud," usually with the appearance of the first clinical case. Where great losses have been sustained by private establishments the misfortune can usually be traced to an indifferent veterinary service. Cases affected with clinical glanders were allowed to mingle unhindered with the others, either on account of carelessness or from mistakes in diagnosis. The pitfall the veterinary practitioner is most likely to fall into in this connection is that of treating an animal week after week for other conditions, only to discover when too late that it was all the while affected with glanders. In the meantime, by its close contact with other animals, in feeding, watering and caring for it, it has exposed and infected a large proportion of the entire herd. Such unfortunate events could not occur where the veterinarian having the animals in charge is well qualified. On the other hand, it is very likely to occur in establishments which do not maintain a regular veterinary service, but live complacently satisfied with the judgment of their lay employes, calling in the veterinarian only as a last resort. Often the old practitioner on being thus called finds one, two or more clinical cases of glanders of some weeks' standing, and upon submitting the exposed animals to the mallein test, from thirty to sixty per cent of these are found to be affected.

In the remount service of an army glanders would not gain headway from indifferent veterinary service, for here animals are usually under the constant surveillance of veterinarians warned to be alert in all things, and especially in matters which would affect the efficiency of the animals in large numbers simultaneously.

The pitfall here is the great likelihood of overlooking clinical cases of glanders among hundreds of the "snotty nosed" animals of a herd badly infected with influenza and its complications. Where no especial care is taken to scrutinize the affected animals as to the precise character of the nasal issue of *each*, there will always exist the danger of a glandered horse or a number of them remaining unnoticed among the others for some days, or even for several weeks.

A veterinarian having charge of a large herd of horses affected with influenza and its complications should exercice eternal vigilance in the examination of the nasal discharge of each animal in search of cases of glanders that might prove the undoing of a large proportion of the herd before the nature of the disease was discovered.

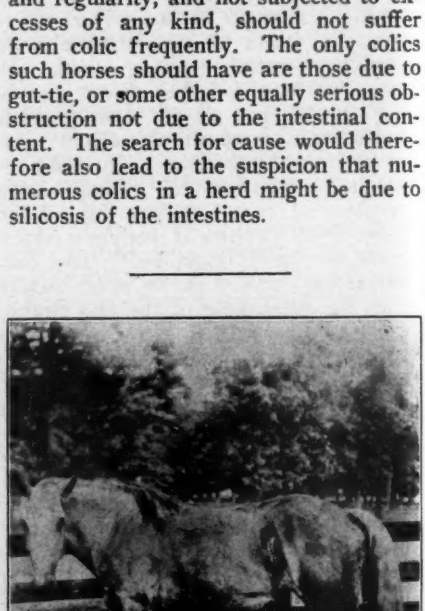
Another pitfall into which a young

veterinarian might fall is that of destroying horses not affected with glanders, due to a misleading conjunctival reaction in horses affected with influenza. Additional tests to check up the ophthalmic test should be made before wontingly killing suspected animals under these conditions. Still another pitfall is malleinization *before* blood is drawn for the conglutination or other serum tests.

The discussion of glanders in "Epizootics and Their Control During War" is the best extant on the subject, and should be studied religiously by every veterinarian having to do with horses kept in large groups, whether for civil or military purposes.

No. 23—Intestinal Silicosis (*Sand Colic*). Horses fed on the ground in sandy regions accumulate enough sand in the alimentary canal to cause colic. The colic may be due to a mere disturbance of digestion, to irritation of the mucous membrane, which may end in enteritis, or to impaction of one or more of the knuckles of the bowels with sand. The former forms are not especially serious, but the latter is always fatal, and is therefore a pitfall to the incautious practitioner, who, when the cause is apparent fails to suspect the nature of the ailment until fatal symptoms develop. Sand may be suspected as the cause of colics when animals are carelessly fed from the ground day after day, or if fed in boxes or feed bags are allowed to pick over the sand where particles of the feed have been dropped, and a more or less positive diagnosis can be made by examination of the feces for sand. They are often permeated with it, and the probability of a given case of colic being due to this cause is in direct ratio to the amount of sand found in the passages. Animals fed in sandy corrals, on the ground when out in the field at work, or when fed on picket lines, are the most likely victims. Animals working under such conditions should be scrutinized constantly for sand in the feces and preventive measures instituted before any serious damage has been done. A horse affected with an impaction of sand is doomed. Even though one attack of colic might be relieved by the administration of oil in large quantities, the cause itself is never removed and will sooner or later cause a fatal attack. Autopsies have revealed as much as twenty-five pounds of sand accumulated in a single mass. The folded colon is the point of predeliction for sand accumulation, but considerable quantities are sometimes found in the stomach and distributed along the small intestines.

Where horses in sandy regions are carelessly fed colics are far more numerous than usual, all other conditions being equal, because of the harmful influence of sand on the digestive tube. Horses carefully rationed, as to amount and regularity, and not subjected to excesses of any kind, should not suffer from colic frequently. The only colics such horses should have are those due to gut-tie, or some other equally serious obstruction not due to the intestinal content. The search for cause would therefore also lead to the suspicion that numerous colics in a herd might be due to silicosis of the intestines.



The above picture, taken five days after an operation for strangulated bowel, shows plainly the extent of the incision. Dr. T. L. Taylor, North Lewisburg, Ohio, who performed the operation, states that it was a genuine gut tie of the small intestine. The swelling below, caused by the operation, soon disappeared.

Department of Live Stock Poisoning

By L. H. PAMMEL, Ph. D., Ames, Iowa
Professor of Botany, Iowa State College

Poisoning from Beet Tops

A CORRESPONDENT of Dr. D. M. Campbell, from South Dakota sends the following letter in regard to a case of poisoning which is of much interest. I am also including the reply of Dr. Campbell:

"I am anxious to know what is the cause (if chemical) of the death of 9 head of Polled Herefords. The following are the circumstances: Cattle have been fed small amounts of beet tops (mangels) for some time. Recently they were given at one feed all they could eat, but the tops were frozen or greatly frosted. They were fed in the late afternoon, leaving some uneaten material (evidence of having had enough). They wandered off to pasture where they had been running at large for some time. Some time during the night all 9 died. The owner assuring me there was no evidence of struggling or suffering, they apparently having 'dropped dead.'

"I saw the carcasses about 48 hours after death. They had been skinned, but lay in apparently the same position as when death took place. Post-mortem revealed very little other than the following: Kidneys light coffee color, very brittle, capsule readily peels, kidney soft and enlarged; small intestine showing slight inflammation (not generalized); subcutaneous bloat anterior to shoulders, (no crepetancy); spleen normal in size, although slightly blacker in pulp; contents of first stomach 'sloppy' and mucus lining greatly inflamed; cattle are of all ages from yearling to seven years old and in fine condition; were pure bred, and had always been ranged in pasture adjoining barn; no inconvenience ever having been noticed prior to being found dead by owner. These cattle on post-mortem showed evidence of having had free access to and drank plentifully of water and this apparently not long before death.

"We have had quite some experience with anthrax and must exclude that; no lesions of black leg either and I ventured the cause from fungus poisoning due to the frozen mangel tops. Am I right? If so, explain that since I am unable to find any thing of enlightment on this particular condition."

Dr. Campbell in reply to the letter says:

"Replying to your interesting communication of the 22nd, it would seem that your case was possibly one of plant poisoning rather than forage poisoning if there be a difference. The circumstances of the death of these cattle and the post-mortem appearances coincide quite closely with the symptoms and lesions of oxalic acid poisoning. I am led to think of oxalic acid as being the cause of poisoning by reports which I have seen that beet tops contain a large amount of oxalic acid; poisoning from this acid being the commonest of poisonings by organic acids.

"I am unable to find in Prof. Pammel's 'Poisonous Plants' that beet tops contain oxalic acid. He mentions in this work that beets not infrequently cause the death of animals through calculus formation, being particularly dangerous to wethers and rams.

"Landers says that oxalic poisoning is common in man and occurs in dogs, but he has not known of its occurrence in other animals, so your case if it be one of oxalic acid poisoning is a rare one."

Beets belong to the Goosefoot family to which the Russian thistle, Lambs quarters, spinage and winter fat belong.

All of these plants contain considerable quantities of oxalic acid in the form of an oxalate. It is a well known fact that oxalic acid is broken up rather easily. May not the freezing have had an effect in breaking up the oxalic acid?

Prof. W. G. Gaessler, Acting Chief in Chemistry of the Iowa State College Agricultural Experiment Station furnishes me the following statement:

"The average analysis of fresh sugar beet tops (from September to November) is given as water 85.47, protein 1.69, fat 0.28, nitrogen-free extract 7.81, fiber 1.53, ash 1.65 and sand 1.57 per cent. It is deemed a desirable feed for ruminants, more especially milch cows. The beet tops were found to contain from 0.11 to 0.42 per cent of oxalic acid, which is said to have the effect of increasing the milk-fat yield without any unfavorable influence on the milk yield. A number of cows fed 43 days on the fresh material made an average daily gain per head of 0.4 kg. in weight. There was a decline in the lime content of the milk, necessitating the feeding of phosphoric lime in quantities of from 40 to 60 gm. per day."

The above anlyasis was made by F. Redlich.[1]

D. C. Lander in his Veterinary Toxicology explains the post-mortem appearance of oxalic poisoning as follows: "There is a blanched appearance of the membranes of the mouth, fauces and gullet. The stomach contains much gelatinous mucus, and is rarely perforated. More or less intenstinal inflammation is observed and the blood is dark and fluid. It will be remembered that oxalates prevent the coagulation of blood by removing the soluble lime in the form of calcium oxalate."

This is probably the reason that calculi occur when beets are fed to rams as stated in my Manual of Poisonous Plants.

Dr. B. F. Kaupp[2] found the following facts:

Sugar beet tops and pulp when fed as silage were found to be very palatable, nourishing, and comparatively cheap[3] Analysis of the tops and pulp show a high percentage of carbohydrates.

In feeding both fresh and soured beet tops to dairy cattle, the number of gas-forming bacteria in the milk was found to be high. With beet tops which had been subjected to a drying temperature milk was produced showing a lower germ content, especially of the putrefactive bacteria. The digestive tract, and the feces were similarly affected. The number of germs was still further lowered on feeding completely sterilized beet tops.[3]

[1]Osterr. Ungar Zeit. Zuckerindustrie .in Landw 43: 375-404, Exp. Sta. Rec. 33: 169.

[2]Am. Vet. Review 1915: 458-462.

[3]Mölk. Ztg. (Hildesheim), 27 (1913), No. 86, p. 1666. Sucr. indig. et Colon., 81 (1913), No. 21, pp. 488-489.

[4]Circ. Ia. Agrl. Exp. Sta., 40: 8 pp.

Soft Corn Poisoning.

There has been much soft corn throughout the corn belt this year. What to do with it is a question. Farmers have been advised to feed it to hogs and cattle. It is certainly not safe to feed this corn to horses and mules. We have found a variety of molds, *Fusarium, Aspergillus, Penicillium* and some *Phycomycete*. John M. Evvard, with reference to feeding, quotes Dr. R. E. Buchanan[4] as follows on this proposition:

"Moldy corn has often been suspected of poisoning cattle and hogs. Investigations carried on in recent years seems to indicate, however, that this rarely, if ever, occurs. The diseases or sicknesses of cattle which were once supposed to be due to mold poisoning have since been found to be due to infection with hemorrhagic septicemia or other diseases which have nothing whatever to do with mold on corn. It seems therefore that there is no good reason why corn showing more or less mold cannot be safely fed to cattle and hogs.

"The molds which appear are sometimes blackish, sometimes bluish, greenish, or pinkish in color. If these molds are not present in excessive amount, that is, if the corn is not actually rotten or matted together by the mold, it is not probable that cattle and hogs will be injured by eating it.

"What has been said above, however, should not be used as justification for

feeding moldy corn to horses. Many instances are on record of horses being killed by eating moldy silage, moldy corn, and moldy forage of other types. Whether or not it is the mold itself or some other organism growing in the moldy corn that causes the trouble is at present uncertain.

Professor Evvard says that swine are especially adapted to the feeding of soft corn because they have a simple digestive tract. On the feeding of cattle he says:

"Cattle can also use the soft corn, but of all grades and classes of cattle, the stockers, the springers, the light milking cow, the wintering steer which is being prepared for grass, and similar non-fattening animals, can handle the soft corn to the greatest advantage."

"This does not mean that fattening cattle can not use soft corn, but that it had best be fed early in the feeding period and the cattle later finished on harder, more mature corn. However, if the corn does not run over twenty-five to thirty-five per cent moisture, it can be used with much satisfaction in the finishing of cattle if fed often enough and providing it is of good quality."

With reference to the feeding of sheep he advises caution: "Moldy corn, of course, is not best for sheep, and due precaution should be taken in the feeding of it; the more moldy the corn, the greater the general risk."

Poisoning From Cotton.

Dr. R. J. High furnished me with the following notes of poisoning of cattle:

"In reply to your favor of July 17th in regard to supposed poisoning of cattle by cotton plants, will say that the cows that were affected were corraled in the evening, adjacent to a field of cotton. Some time in the night around twelve or one o'clock, the rancher heard the cattle breaking into the cotton field from the corral, and went out to see about them. He found only a few had eaten any of the cotton, as they had not all yet gotten into the field.

"He found one cow down and three others sick, unable to walk and they soon became paralyzed and went down.

"The symptoms of the disease are that of paralysis, the animals being unable to arise, but would try to crawl on the ground dragging the limbs much like a seal carries its hind parts. One of the animals would continuously nibble at the ground. Temperature was slightly subnormal, pulse greatly accellerated.

"The corral where the animals were confined was dry with no feed in it; the cotton field had just been hoed and all vegetation except the cotton had just been removed, so it is possible that the animals being real hungry were forced to eat the cotton and then became poisoned.

"I do not think cattle will eat green cotton except when they are very hungry."

It is not at all strange that green cotton plants should contain some injurious substance. Cases of poisoning of this kind have, however, not been reported frequently. The root is a well known abortifacient. In cotton seed meal poisoning, autopsy reveals hemorrhagic gastroenteritis, opaque swelling of the liver and kidneys.

Case of Forage Poisoning From Alfalfa Hay.

Dr. C. L. Benoy, of Maxwell, New Mexico, writes as follows:

"I am mailing you, under separate cover, a specimen of alfalfa. The bale of hay this specimen came from was fed to two horses at six o'clock Monday night. At eight they were both sick, and Tuesday at six p. m. they both died. I didn't see these cases, but from what history I have of the cases I suppect forage poisoning. This meadow is in the foothills and last year the hay from this piece of ground killed fourteen animals. Four of these cases came under my observation. The symptoms were nervousness, muscular paralysis and convulsions; horses get down and are unable to rise for 24 to 36 hours. These four cases recovered after four or five days. Others only lived a few hours. Those treated with purgatives and stimulents early in

the attacks recovered in from six to eight hours."

The specimen sent has a moldy smell and the stems are covered with little raised masses of bacteria. I am satisfied that Doctor Benoy, in this case, has correctly diagnosed the trouble with the horses. It seems to me the best thing to do is to feed clean hay instead of that which is being used.

Colorado Plants Injurious to Livestock.

The writer regrets that he did not receive a copy of an admirable paper by Geo. H. Glover and W. W. Robbins[1], on Colorado plants injurious to livestock, which was published in 1915.* Grazing in Colorado will always be an important industry because it is a mountainous state. Poisonous plants will therefore have a special economic significance to the ranger and breeder. The following most excellent suggestions are made with reference to poisoning:

"It is important to know the conditions under which poisoning is most liable to occur. There can be no doubt that animals, when left to themselves, will by instinct exercise considerable judgment in the selection of their food. Experiments have shown that more animals are poisoned when being crowded by the herdsman, and in case of cattle, when they are handled at the time of "round-up." When being driven, animals will grab at weeds that they would not otherwise touch."

"When animals are very hungry they are not very particular in the selection of their food. Many disastrous cases of poisoning occur when cattle and sheep are taken directly from the yards to the ranges after a long shipment."

"Larkspur and some other plants, are known by experience to be far more poisonous when the foliage is wet from dew, rain or snow. When poisonous plants, like the death camas, start to grow in advance of the native grasses, they are eaten almost to the exclusion of everything else. An acrid, bitter or otherwise disagreeable taste does not always bar stock from eating the first green food that appears in the spring time. Again in the late summer the native grasses often cure early from drought, while injurious plants like loco and lupine remain green. It is obviously true that stock will eat most poisonous plants that are green in preference to grass that has dried up, and this no doubt accounts for the loco habit being acquired more often in the late summer and fall."

"The stage of growth has much to do in determining whether or not certain plants will be eaten at any particular season of the year. The larger species of larkspur and the water hemlock become coarse and objectionable after flowering and are seldom eaten. On the other hand, some plants are relished throughout the period of their growth. The death camas is eaten with avidity just before the flowering stem is formed; equisetum is eaten more after being cured with the hay, and mature lupine with the seed pods appears to be relished by sheep. To analyze all of the conditions under which poisoning occurs seems to be a hopeless task. The subject is complex. In the realm of poisons we are still groping in the dark, and there are many mysterious cases of poisoning that are quite unaccountable."

"We believe that much loss can be prevented by taking the above suggestion into account. Stockmen are advised to become familiar with the poisonous plants of the range. It is hopeless to undertake the extermination of these poisonous plants on the range. The author says: 'Plants that tend to grow more in patches, like the woody aster, monkshood, death camas and false hellebore, promise more in the way of extermination by the use of the grub hoe, than do loco, larkspur and lupine, which are more widely distributed. One instance came under observation in which all the loco weeds on a section of land, under fence, were removed by digging, and three years later the pasture was apparently as badly infested with loco weeds as before, much to the discouragement of the owner."

The authors discuss algæ, fungi (ergot, mildews, smut, rusts, molds) horsetail, grasses, death camas, white helle-

(*Continued on page* 98)

[1]Bull. Colorado Agrl. Exp. Sta. 211: pp. 1-74.

Queries and Answers

ABORTION BACILLI NOT THE CAUSE OF LAMENESS

I was called to see a herd of fifteen dairy cows that were all stanchioned and standing on a board floor. Four of these cows were lame in the left stifle-joint. Seven out of the fifteen head had aborted all the way from two and one-half to six months after they were bred. One of these lame ones is a two-year-old heifer and is not with calf, nor never has been. Two of the others that are lame have aborted. The other lame one is five or six months pregnant.

Upon examination of the stifle-joint, I found a collection of synovial fluid, without any particular inflammatory condition. The peculiar part of this is, why is it in the left stifle only, and why all the cows are affected alike.

Could it be that the bacillus Abortus Bang would cause synovitis, but why affect the left stifle? Let me hear from you on this subject, as I am puzzled.—J. D., Indiana.

REPLY: I am inclined to think there can be no relation between the abortion disease which is evidently rampant in the herd to which you refer, and the cases of lameness that you have observed. I would suggest that you look into the matter carefully and see if the lameness may not be of traumatic origin. Its occurrence in the same stifle in a number of animals would suggest something about the construction of the barn that is responsible for it.

There is ample evidence of some connection between contagious abortion in mares and joint-ill in foals, but so far as we know the bacillus Abortus Bang is not responsible for a similar disease affecting calves, and even if present there, from its nature it is not probable that it would cause much disturbance.

COMPLICATIONS FOLLOWING CASTRATION

The case is that of a yearling colt, part Belgian, part trotting breed, castrated in June. He was turned out immediately afterward and remained out for a week, for two or three days of which he was in a cold rain. I had told the owner to disinfect his hands and keep the incision open for a few days, but he did not do so. After that, being brought in badly swollen, I used cal sulphurata at first also syringing out the wound, and he was apparently doing well, but after two or three weeks the scrotum swelled enormously and after poulticing it for two or three days, I opened it in several places, it seeming to be permeated with infiltrating abscesses. I then put him on potassium iodid, accompanied by small doses of digitalis and strychnin. He seemed to be generally weak and devitalized from the start, his pulse being around 60-65 and very weak, and even his teeth were in bad shape, needing floating. I used iodin and gave mercury bichloride as an injection, washing it first with creolin solution. About three weeks ago he was apparently doing well, temperature normal (it had previously persisted around 102° and 103° most of the time) although his pulse was still 60-65 and rather weak. This continued for nearly two weeks, but about ten days later, I suppose from being confined in a very dirty box stall owing to the scarcity of straw, and the persistent cold wet weather, he became infected again, his scrotum swelling a good deal, his hind legs being edematous. He is still on potassium iodid, accompanied by the stimulants which had been dropped for a time and the swelling and discharge are lessening a good deal.

Could you give me any advice as to treatment, locally and otherwise, or would poly-bacterins be of use in a case of this kind? His temperature, which was 105° F. about ten days ago has dropped to 101°. He has plenty of clean bedding, but cannot get much exercise on account of rain. I have used

6 ounces zinc chlorid saturated solution. Possibly that is not strong enough. Do you think this is due to botryomycocis persisting? Any advice I can get will be gratefully received.—R. S. C.

REPLY: This case illustrates clearly the responsibilities of the veterinarian in operative cases. Legally an operation includes the after-care of the patient until recovered and unless an agreement to the contrary is made with the owner, when a veterinarian castrates a colt, even if he charges but $1.00, as is unfortunately true in some cases, he is legally bound to keep the animal under observation and treatment until fully recovered without an additional fee, and is liable for its value if the animal is lost as a result of lack of after care.

The foregoing case appears to be one where the trouble has been wholly due to bad after-treatment. To begin with, the veterinarian was at fault in instructing the owner to open the wounds. The owner could not be expected to properly disinfect his hands for such treatment. Further "opening them up" is unnecessary, in a properly castrated animal. He was also at fault in that he did not caution the owner to keep the animal from undue exposure to cold and rain following the operation.

The infection would appear to be pyogenic rather than botryomycotic, the elevafion of temperature and other constitutional symptoms being due to the absorption of toxins. Clean surroundings, free drains of abscesses as they form and of the serum from infiltrated areas, with general tonic treatment would seem to be indicated. When the acute stage is past, bacterins should be useful, poly-bacterins or perhaps simply strepto-bacterins would be likely to prove useful, although an autogenous bacterin might give better results.

PURULENT MYOCARTITIS

November 1st a client came to my office for medicine for a cow that he said was off feed and rather constipated. This was about 4 p. m. and the cow had just become constipated. I prescribed, but returning home about 6 o'clock, he found the cow dead upon his arrival.

On post mortem examination the following morning, nothing abnormal was found except in the heart, a photograph of which I am enclosing. The entire surface was roughened, having numerous light colored elevations, varying in size and of a tough fibrous nature. The

The white spots show elevations which contained caseous pus, probably due to tuberculosis.

organ had a very foul odor and was enlarged considerably. The surface of the pericardium resembled that of the heart and the pericardium was thickened.

This may be a case of common occurrence, but I have never seen or known of one exactly like it. J. O. C., Ind.

REPLY by Dr. W. W. Dimock: This case of purulent myocarditis was undoubtedly traumatic in origin, as are at least 90 per cent of the cases of pericarditis (purulent or suppurative) in cattle. Three major conditions found upon post-mortem examination more or less definitely determine whether or not a case of pericarditis is of traumatic origin. The presence of a foreign body is of course conclusive. The presence of a connective tissue band between

the reticulum, diaphragm and pericardium is equally conclusive since it, in our experience, always results from the passage of the foreign body from the reticulum to the heart, and third, the character of the lesions in the heart and its membranes, in the absence of either the foreign body or connective tissue adhesions. These in my opinion are sufficient to enable one to make a diagnosis. These lesions are in general as described by J. O. C. The presence of the purulent exudate in the pericardial sac, a fibrous thickening of both the parietal and visceral layer of the pericardium and the rough irregular or corrugated appearance of the epicardium. Further, indigestion and constipation are rather characteristic symptoms of chronic pericarditis.

In most cases of traumatic pericarditis in cattle, the affected animal will show symptoms of ill health for several days or weeks before death. In a few cases the animal may remain apparently healthy up to a very short time before death. This may be explained by the fact that the extensive fibrosis of the heart membrane tends to encapsulate the exudate and prevent the infection and toxic material from reaching the general circulation, at least in quantities sufficient to be injurious. In cases where death takes place more or less suddenly it is quite apparent that some pathological change occurs permitting the entrance of micro-organisms, or large quantities of the purulent exudate, directly into the systemic circulation, the animal dying of septicemia, pyemia or intoxication.

The symptoms shown by animals at the very beginning of the disease are usually unobserved or when noticed are seldom correctly interpreted except by those who have had considerable experience and who make a careful clinical study of the case. I would refer J. O. C. to an article on "Some of the More Common Diseases of the Heart," published in the AMERICAN JOURNAL OF VETERINARY MEDICINE, December, 1917.

CHANGE OF FOOD ADVISED

If any of the readers of your journal would be kind enough to give us their experiences and treatment of convulsions in dogs, we would be greatly obliged.

The convulsions we have the most trouble with are those affecting young dogs, and the first symptoms are champing of the jaws, drooling of saliva, lasting in the early stages a very short time. Gradually these convulsions become more severe and in spite of any treatment which we have been using, a great many die.

Post-mortem examination fails in many cases to demonstrate the presence of worms nor do we think that teething is the exciting cause. Our treatment has included hot baths, emetics, opiates, worm medicine, purgatives and intestinal antiseptics. These puppies have not had distemper.

They are fed dog biscuits, cooked meat, beet broth, bones, boiled rice and milk.—JAMES & KENNEDY, Ottawa, Ont.

REPLY: It would seem that the trouble here is with the diet, not because the selection of food is a poor one, but because some part of the food is poor. Most dog biscuits contain meat. The meat in the biscuit that the inquirers have been using may have been putrified to some extent. Toxins in putrified meat are not always destroyed by the cooking. Or tainted meat may have been used, in the belief that cooking would eliminate the danger.

We are opposed to feeding cooked meat to dogs, not because they will do well upon it, but because they will do better upon raw meat. Further, it is a bad policy to give anything but fresh, untainted meat to young dogs, particularly of delicate breeds. We should prescribe for these dogs an entire change of feed. A different brand of dog biscuit, raw hamburger steak with plenty of tallow in it and sour milk if they can be induced to drink it.

In addition to the change of feed, animals already affected might be benefited by the administration of cathartics, stimulants and atropin.

POTASSIUM DICHROMATE IN PURPURA HEMORRHAGICA

Until recent years, potassium dichromate was about the only remedy used in the treatment of purpura hemorrhagica, but it has fallen into disrepute of late.

A short time ago I was called to a case of purpura hemorrhagica. The horse showed violent pain, a subnormal temperature, swelling about the nostrils, lips and head and severe meningeal symptoms. I gave the animal 16 ounces of passiflora incarnate, one-half ounce stramonium, four ounces camphor and four ounces of colocynth within three hours.

The case apparently grew worse. The temperature dropped to 94° F., and I left to attend another case, expecting the horse to die. Within twelve hours the horse was on its feet and eating hay. It required no further treatment. Did not the action of the colocynth and passiflora on the liver accomplish this? I am sure it was an unusual case of purpura hemorrhagica. There could be no mistake in the diagnosis.

C. F. Neis, D. V. M.

Mt. Sterling, Iowa.

Reply: The vagaries of purpura are so little understood it would be unsafe to venture an opinion as to what caused the turn for the better in your case.

PUZZLING SKIN DISEASE IN DOG

I have a dog, "hound," that has a skin disease that is foreign to me. It is on the front legs and hocks, also on the root of his tail. The first thing noticeable is a scab somewhat elevated and about the size of a dime. When this is removed it causes pain and quite a little pus is evacuated. Each day another scab forms but when removed less pus is formed until finally the hair comes out, leaving a bald spot, scaly and elevated, having a fungoid appearance. This becomes a chronic, scaly white bald spot. There is no itching at all and the dog does not scratch. It is contagious. I have tried most of the stimulants, but without results. Could you tell me what the trouble is?—T. B. D., Virginia.

Reply: A number of questions arise which one would like to have answered before attempting a diagnosis of the foregoing case. Does the hair finally grow again in the bald spots? Or, are the hair follicles destroyed by the inflammatory process? If examined closely might not affected areas smaller than those described, be found? What is the age and condition of the dog? What other animals have been affected and how rapidly does it spread?

From the description, one is led to think first of favus or herpes, that is, of a fungoid skin disease. Both are usually characterized by itching, but the irritation is sometimes very mild and an intelligent dog if scolded for scratching might desist. Both diseases are communicable to man and other animals and care should be used to avoid their spread.

For either of these diseases, Saunders, in "Canine Medicine and Surgery," recommends an application to the parts of bichlorid of mercury in alcohol, 1-300 and when the parts are dried, apply an ointment repared as follows:

Ac. salicylic
Ac. benzoic, aa Gr. xv.
Petrolatum alba ℥i.

All hair and scabs removed from the wounds should be burned and the hands disinfected after applying the ointment, to avoid infection. The patient should be isolated and kennels disinfected.

CONTAGIOUS ABORTION AND NAVEL-ILL

We have been having a great many losses in foals here. Many of them are born with joint-ill, but a great number are well developed and perfectly matured but are born dead. This has been confined to the get of one or two stallions and confined to three or four ranches. Year after year they tell me they have had the same experience and I am writing to you for advice. Can you recommend anything to prevent this? Can the colt be cured after joint-ill has become fully established?

Reply: The trouble which you describe is probably, one might almost say undoubtedly, due to contagious abortion. Prof. Good of the Kentucky Agricultural Experiment Station pointed out a number of years ago, the fact that navel-ill is more prevalent in herds where contagious abortion exists than elsewhere, and expressed the belief that many cases of navel-ill were the result of infection *in utero*. This observation has since been corroborated by many

others. The birth of dead colts is a well recognized symptom of contagious abortion.

Not very much definite information can be given regarding the treatment and prevention of contagious abortion in mares. The causative factor has not been identified with certainty. There is a strong belief among practitioners that the administration of streptococcic bacterins or poly-bacterins before parturition constitutes a valuable preventive of navel-ill in foals. The first dose of bacterins should be given about four weeks before the time of parturition, the second dose a week later, and the third, after a lapse of another week.

Well developed cases of navel-ill usually run a fatal course, unaffected by treatment. Milder cases and cases taken early in the attack, often appear to be benefited by the use of bacterins and are undoubtedly improved by systematic treatment. Cathartics, stimulants and free incision of the swollen joints after they have become infected appear to have given good results in numerous cases.

INFECTED TENDON SHEATH

A six-year old mare was troubled with infected tendon sheath as a sequela of distemper. After six months' treatment she apparently recovered. When taken from the pasture I noticed some swelling over the superficial flexor tendon, as it passes over the hock, and some fluid was found on opening the abscess. Fluid of the same consistency has since been found all through the sheaths of the tendons covering the hock. At each treatment iodin has been injected into the cavity. I have used poly-bacterins but cannot seem to control the fluid. Swelling will persist in appearing in a different place in from eight to ten hours after opening and cleansing the last place. In all I have made about a dozen different openings. The mare is somewhat lame and swelling causes considerable pain. The swelling is confined to the posterior part of the hock. When I commenced treatment both legs were affected from the fetlock up. A tonic has been given for the blood. Can you suggest some treatment which you think will be beneficial?—J. P. L.

REPLY: This case is evidently an infected thecitis. It would appear that a favorable outcome might be expected from continuing the line of treatment already used. Since the poly-bacterins have not proven effective, it might be advantageous to have an autogenous bacterin made, or perhaps a straight streptococcic stock bacterin could be used to advantage. The long period that has elapsed since the attack of distemper would make it seem that other secondary foci of infection are not probable.

MULE GETS "PUFFED UP"

I have a puzzling case of a mule about ten years old that had been in a feed yard for about two weeks. When first noticed the mule began to puff up all over with air in the tissues under the skin. He eats and drinks regularly but seems somewhat stiff. There is no visible trouble elsewhere, but this condition seems to be gradually growing worse.—J. O. S.

REPLY: From the information given, one is inclined to believe that the mule is affected only with a mechanical inflation of the subcutaneous tissue, due probably to a slight skin wound in the axillary region or behind the elbow, less likely near the withers. Small skin wounds or puncture wounds of this kind occasionally open during the movement of the parts and allow a quantity of air to enter beneath the skin and close with a different movement preventing the escape of the air and forcing it to remote parts of the body. I have seen a few such cases and heard of many of them. The condition recovers spontaneously when the inflation is stopped.

Tracheal fracture sometimes causes such conditions.

EFFECT OF ANTI-HOG CHOLERA SERUM ON BREEDING

Does anti-hog cholera serum have any effect on breeding sows? That is, does it stop them from breeding?

REPLY: No.

SYMPTOMS INDICATE SPINAL PRESSURE

I have a big gelding that while working suddenly lost partial control of his hind legs. He stands up well but sways from side to side although he walks ahead fairly well. The tail seems to be normal, and he eats and drinks as well as ever but can hardly get up when he lies down. For a week he seemed to improve but became worse again. I at first thought it was cerebral meningitis, but aside from the weakness in his hind legs, he seems normal.—J. O. S.

REPLY: The symptoms seem to indicate pressure somewhere along the spinal cord. This may be due to a hemorrhage, or an effusion of serum, or to a tumor. In any case the prognosis is doubtful or unfavorable, depending to some extent upon the age of the animal. Expectant treatment would be a potassium iodid in full physiological doses over a rather long period.

1
YOU HAVE A MIGHTY SICK CALF HERE MY MAN.
2
BUT THAR'S THE STUFF THAT WILL DRIVE THE BILE BACK INTO THE DUCKS AGIN
3
AN' IF WE KIN STOP THE OVERFLOW OF THE PEDESTAL-
4
HI ! LEGGO THAR
5
TIME I WUZ MAKIN' OUT MY BILL.
6
DOC 'LL SOCK IT TO ME FER THIS VISIT I BET
V. BROWN

ANOTHER CALL FROM DOC VETTER Courtesy Country Gentleman.

POINTED OPINIONS ON LIVE TOPICS by Readers of Veterinary Medicine

It is in reports like those of this department that the current history of the progress of veterinary science is written. Are you leaving a record of your experience which will help others, as you have been aided by these and other clinical reports? If not, you are earnestly invited to contribute from your experience that this department may be of the greatest service to its readers. By so doing you will earn the lasting gratitude of those who are aided by your suggestions.

Hospital Facilitates Obstetrical Treatment

THE subject of veterinary obstetrics is one upon which much has been written and the subject so ably dealt with by men of world-wide fame, that it causes one to hesitate in attempting to write for publication on the subject, especially in consideration of the old axiom, "There is nothing new under the sun."

All who practice veterinary medicine are fully aware that obstetrical work is about the most disagreeable part of the service, due to the actual hard manual labor required, which is nearly always made more difficult by inability to restrain the patient and still more so by the unpleasant surroundings of cold muddy barns or stock yards in which one is forced to do his work.

It has fallen to the lot of the writer during the past two years to do a great deal of work in equine obstetrics. Being located in a rather new country where the farm buildings are cruder than in the older country, and where the climate is rather rigorous, cases of difficult parturition have been met with under circumstances which seemed to make successful handling of them beyond the power of human endurance, to say nothing of hazards of infection to the animal.

In all cases of this kind the practice has been to have the animal led into the hospital. The average owner will insist that it will be impossible for the animal to walk to town, and it is sometimes necessary to be very insistent, sometimes to the extent of bulldozing, in order to have the attempt made. As to the ability of the animal to make the trip we have never yet had a failure in this regard; animals having walked as great a distance as fourteen miles with apparently no ill effects. This course is, however, never resorted to except in difficult cases where embryotomy is necessary.

By having the animal brought to the hospital it is possible to place it upon the operating table, where complete restraint is possible, and where an anesthetic may be easily administered to control labor. We find that the position of lateral recumbency often so changes the position of the fetus that the work is rendered much easier. In the matter of anesthesia we have found that chloroform inhalation sufficient to control labor is satisfactory and safe, greatly facilitating the ease of operation, both for the patient and operator; in fact we have had better results from the use of anesthesia than without, and it seems reasonable to suppose that many animals if permitted to labor, are likely to exhaust themselves, greatly lessening their chance of recovery.

It is needless to add that a fairly clean warm operating room has many advantages over a dirty cold stable, both in the matter of cleanliness and comfort to the operator, permitting him to con-

serve to some extent his much needed endurance. It is also much easier to collect the fee promptly when the animal is in the hospital.

The following case reports are given, not with the idea of disclosing any new methods of operation but merely with the idea of showing that an animal after starting to foal will travel considerable distances with seemingly little inconvenience. Little space has therefore been given to presentation and position of fetus or operative technic.

February 9, 1916. 11:30 p. m. Temperature 15 below zero. Mare, 4 years old, weight 1200 lb., had been in labor about 5 hours. Dorsal presentation, tranverse position. All that could be felt by the operator upon palpitation was back and withers of fetus. Case had been tampered with by neighbors. Mare very restless. Was led 12 miles, arriving at 6:30 a. m. Complete embryotomy performed with anesthesia. Time of operation one hour and twenty minutes. Animal recovered.

March 13, 1916. Mare, 7 years old, found in labor in morning by owner. Breech presentation. Owner had no barn; animal hard to control, lying down and rising frequently. Was led a distance of five and one-half miles to hospital. Partial embryotomy performed without anesthesia. Time of operation about one hour. Animal died two days later.

April 3, 1916. Chestnut mare, 5 years old. Breech presentation, one hind leg presented. Owing to inclement weather and unfavorable surroundings animal was led to hospital, a distance of four miles. Colt delivered without anesthesia. Time of operation about forty-five minutes. Animal recovered.

July 24, 1916. Mare, 7 years old, found in labor in morning upon going to stable. Owner tried to aid animal, later calling assistance. Position transverse, four legs being presented. Subcutaneous amputation of fore legs performed. Fetus repelled making posterior presentation. Animal apparently rallied nicely. Next morning seemed in good condition. At 12 m. was noticed to be breathing rapidly, heart accellerated. Died at 1:15 p. m.

April 3, 1917. Mare, 6 years old, presentation and position same as foregoing. Was led nine miles to hospital, placed on table and anesthetized. Animal recovered.

April 22, 1917. Mare, 8 years old, weight 1500 lb. Transverse position; three legs presented. Animal led to hospital a distance of ten miles, placed on table and anesthetized. Recovered.

April 6, 1917. Mare 6 years old. Anterior presentation with extreme lateral deviation of head. Animal led two miles to hospital at 3 o'clock in morning, placed on table and anesthetized. Both fore limbs amputated subcutaneously. In this case another veterinarian was unable to handle the case alone and we were called in to assist. Animal recovered.

April 18, 1917. Mare, 9 years old, weight 1800 lb. Fetus decomposed. Was led to hospital, a distance of 12 miles. Died upon table in about 15 minutes. No anesthesia.

May 12, 1917. Mare 12 years old. Anterior presentation with downward deviation of both front legs which were flexed at the knees. Impossible to straighten. Was led a distance of 14 miles in three hours. Anesthetized. Animal recovered.

May 28, 1917. Mare, 3½ years old, weight 1000 lb. Breech presentation, fetus decomposed and emphycematous. Animal led six miles. Anesthetized. Posterior limbs amputated subcutaneously and fetus eviscerated. Mare recovered.

W. R. Jones, D. V. M.
Burley, Idaho.

A PROLONGED CASE OF PARTURIENT PARESIS

September 2nd, 1917, I was called to the farm of one of my clients to see a cow which they described over the phone, "as having gone down." Being then on a call and having another call to make, I did not get there for several hours. Upon my arrival there I found my patient lying in the barn yard in a

comatose condition and apparently in the last throes of asphyxiation due to a very severe tympanites. I at once performed a paracentesis and when the condition had been relieved, I proceeded to examine her and obtain the history of the case.

The history showed that she had calved two days previous, and apparently had been well until the morning of the present day when she had showed signs of weakness and had soon gone down.

Examination revealed a subnormal temperature, slow sluggish heart, skin and eye reflexes absent, motor paralysis involving the extremities and the pharyngeal and glossal muscles.

The rectum and bladder were both full. I made a diagnosis of parturient paresis and proceeded with the usual air treatment and a hypodermic injection of strychnine, together with 10 mil of camphorated oil. The bladder was emptied and one-half ounce of Eau-crecamph emulsion (Jensen) injected through the canula into the rumen to control the fermentation.

When I called the next morning she had regained some motor control, but could not stand. The air treatment was repeated and as her bowels had not moved, a mild purgative was given together with an enema. A mixture of nux and aromatic spirits of ammonia was left to be given every four hours. She was not up the next day, so called again. There was no change in her condition, except that a little temperature was present and some signs of intoxication, while a vaginal examination on the first visit had shown a clean and contracted uterus. I, however, examined it again with negative findings, and as the vagina showed no signs of infection from the air treatment, I concluded that the symptoms of intoxication present were due to the contents of the rumen, for although the bowels had moved copiously the rumen was distended with food; hence I decided upon a rumenotomy before more alarming symptoms appeared. This was done under chloroform anesthesia and brought forth a lot of decomposing corn leaves and the placental membranes which she probably had eaten when expelled, as cows often will. She was placed in a comfortable position and orders given to keep her there. A mixture of strychnin, arsenic and potassium iodid was left to be given twice daily.

She got up in about a week, and the last I heard of her she was doing well and gradually coming into her usual output of milk. What seemed unusual to me was her unusually long period of loss of muscular control.

Clermont, Iowa. G. E. Jorgenson.

BOVINE ABORTION DUE TO SEVERAL CAUSES

In this section of the state, abortion and sterility in cattle has been, and is causing great loss to the farmers.

During the time in which I have engaged in practice a good deal of my work has been along the line of abortion. In working with this condition I have found that I can divide it into three classes, as follows:

1. True infectious abortion, as ascertained by the blood agglutination test together with clinical findings.
2. Pathological changes due to infection with ordinary pus organisms.
3. Benign pathological changes.

It has been my experience that the key to success in treating abortion is to find the cause and place the individual case in either one of these classes. To do this a careful examination and blood test is necessary.

In true infectious abortion we can make still another subdivision as follows:

1. Those cases in which no organic (extensive) changes have taken place.
2. Those cases which show organic changes of such a nature that the animal is and always will be sterile. In these cases, we find a chronic endometritis, and salpingitis, causing a destruction of the uterine mucous membrane and an occlusion of the fallopian tubes by inflammatory products. In these cases rectal examination shows the uterus enlarged and tender. The tubes likewise are indurated and painful.

I have confirmed my ante-mortem findings in two such cases, and found the tubes completely occluded and a chronic inflammation present in the uterine mucosa.

Such cases I prognose as hopeless and advise their fattening and slaughter.

In cases showing no extensive structural changes, I advise treatment consisting first of dilating the uterine cervix and careful irrigation of the uterus with large quantities of sterile normal salt solution, after removing any retained placental remnants that may be present. Then I give a course of sodium cacodylate gr. xxx hypodermatically over a period of four weeks, followed by a course of four injections of abortion vaccine. I try to commence my treatment immediately after abortion and allow the animal to be bred after the second injection of vaccine.

Good sanitation and isolation of each case is carefully practiced.

In the second class we have an infection with the usual pus organisms such as staphylococci or colon bacilli in many cases introduced by the unclean hand of the hired man or perhaps the owner at the time of parturition either to correct dystocia or to remove a retained placenta.

In these cases we have a pyo-endometritis, metritis and pyosalpingitis. In these cases we can again attempt to subdivide into two classes, depending on whether or not permanent destructive changes have taken place in the uterus and tubes.

My treatment in these cases consists of irrigation with sterile normal salt solution and the indicated systemic treatment, as laxatives and iron tonics, when the animal may be bred, and if it can not become pregnant, fattened and sent to the market.

In the third class we have organic changes taking place in the ovaries, as revealed by rectal palpation. These consist usually of cystic growths or unabsorbed corpora lutea.

These I treat by simply rupturing or crushing with the hand in the rectum. By careful studying the different forms and the various causative factors one can get results or advise as to the animal's disposal.

It is my opinion that strong antiseptic irrigations are useless if not actually harmful. The idea of irrigation is to remove as much of the infectious material and products as possible by mechanical means, and I believe that sterile normal salt solution accomplishes this without doing actual tissue damage. Great care must be used to remove all of the solution injected.

Sodium cacodylate has proven a valuable drug in the treatment of general blood infections.

Biologics are beyond the experimental state, having proved their usefulness in other conditions.

Between the two I have obtained splendid results in true infectious abortion, diagnosis of which as above stated, having been confirmed by the agglutination test.

Clermont, Iowa.

G. E. Jorgensen, M. D. V.

TAPEWORM IN PERITONEAL CAVITY OF RABBIT

I have just finished a gross examination of some tapeworms sent to this laboratory by Dr. D. J. Powletta, Bell, Fla. Dr. Powletta is authority for the statement that these tapeworms came from the peritoneal cavity and that there was positively no tear in the intestine to make it possible that the worms had found their way into the peritoneal cavity from the bowel.

The extreme length of these worms is 36 inches or 90 cm. The segments are very short, the longest ones measuring only 1 mm., and one-half inch or 12 mm. wide. This broad tapeworm is the Ctenotaenia Leuckarti and has its normal habitat in the large intestine of the rabbit. The life history is not known. This tapeworm is unarmed: neck long and slender; head unarmed, small, measuring 0.5 mm. in diameter; suckers oval.

A second tapeworm was found with the broad specimens described above.

The exact length could not be determined as the worms were much broken. This worm belongs according to its structure to the genus Hymenolepis. We are unable to trace it in any books at our disposal. The head is rather flattened at the anterior extremity and about twice the width of the neck. The neck is slender and about 3 mm. long. The head is provided with four rather oval suckers and a rostellum of small hooklets. There are about 100 hooklets in the circle. The edge of the sucker is provided with small spike-like projections arranged in 12 to 15 definite rows. The rostella of hooklets are located between the four suckers and on the extreme anterior end of the head.

In the segments the genital pores are unilateral (?), uterus sacciform, ripe segments average 1.2 mm. long and 2.1 mm. wide. The genital pore does not appear to be in a pit. In younger segments the posterior edge is wider than the anterior edge of the succeeding segment giving the worm a decided, serrated appearance. The anterior edge of these measured 1.4 mm. and the posterior 2.0 mm.

B. F. Kaupp, Pathologist.

N. Carolina Agricultural Experiment Station, West Raleigh.

ACUTE MENINGITIS IN HORSE

On Sunday, August 19th, four p. m., I was called to see a horse in a nearby town. I arrived shortly and was given the following history: The horse had been driven by the owner about ten miles since noon, and had gone at a walk all the way, until it made a sudden dash to run, was checked by driver, but made two or three more attempts before becoming quieted down. The owner unhitched the animal and took it to a stable about 300 yards distant. The animal was manifesting the following symptoms upon my arrival: eyes widely dilated, respiration slow and deep, pulse rapid and weak, and sweating profusely. It was very nervous, trembling occasionally and jerking its head in the air, especially when I tried to touch its head.

Diagnosis: Acute meningitis.

Treatment: I tried to administer arcolin hypodermatically but was unsuccessful. We finally had to cast the animal. Two ounces of chloral were administered per rectum and one-half grain of arcolin hypodermically. The animal was then placed in a quiet stall, and it rested well that night. About four a. m. it had another spasm or convulsion. At six o'clock a. m. I administered one ounce of chloral hydrate and two ounces of alos per os. At and two ounces of aloes per os. At quart linseed oil as a drench. No action from the aloes and oil took place until the following noon. The animal was given stimulative treatment for a week and recovery was complete.

W. T. Scarboro, D. V. M.

Winston-Salem, N. Car.

AZOTURIA ALIKE IN CITY AND COUNTRY

For many years, azoturia has been, and still is, one of the most baffling diseases or conditions confronting the veterinary profession, at least as far as the etiology is concerned. Our journals and textbooks are rife with literature on the cause and treatment of the disease, but, personally, I believe many more volumes will appear before any of us know much about it. Up to the present time the real cause of azoturia has not been determined. We all recognize azoturia as soon as we come in contact with it, but when our clients ask what the cause is we are at a loss, baffled and disgusted with ourselves because of our ignorance. I am not endeavoring to advance anything new, but referring to M. R. Steffen's article in the January, 1917, issue of the Journal, as to the vast difference between azoturia in city and country horses, I infer that Dr. Steffen had never practiced extensively in the country. During the eight years of my country practice I have had a number of cases of azoturia, but have never been called in time to see one go down. They are always down when I arrive on the scene.

Personally, I see no logical reason why city horses should have worse at-

tacks than country horses. As for the treatment, I consider the use of a lot of horse sense essential, and until we know definitely the cause of the disease, we are, my judgment, doing the profession and our clients an injustice by giving shotgun doses of this and that. In my judgment a little cudbear and aqua fluvalis would be much better.

My treatment of immediate evacuation of the bowels; use of the catheter at once and every six hours thereafter, keeping the bowels open with plenty of oil to prevent delirium. Give fluid extract of hyoscyamus one-half ounce, fluid extract of gelsenium one-half ounce, every four to six hours. Give the animal plenty of water, no grain, plenty of good hay and some bran.

I would like to hear through the columns of your valuable journal of the experience of others with this disease.

Gate, Okla. C. C. ROBINSON.

Comment: Evidently the doctor doesn't take his own advice, i. e., he advises a placebo but uses oil, gelsemium and hyoscyamus. He advises keeping the patient quiet and then medicates it, orally, at frequent intervals and between times passes the catheter. We believe he would find lobelin a more satisfactory sedative for azoturia cases than those he is using, and the longer intervals at which it may be administered and the possibility of giving it hypodermatically with a minimum of disturbance to the patient are telling arguments in its favor.

A DELUSION THAT DIES HARD

In a recent number of a certain publication there is a report headed "Ruptured Stomach." The case was a 1,500 pound gray gelding and when first seen by the doctor he was walking around his stall and vomiting every few minutes. Temperature normal; pulse hard and fast; respiration fast and labored.

Diagnosis: Rupture of the stomach. By giving a dose of lobelin sulphate the pain was abated for an hour and then the vomiting commenced again. Now was this a case for lobelin sulphat or was it a case for the stomach tube? Supposing the late Doctor Knisley had read this article what would he have said? It is almost enough to bring him back.

After a stomach has ruptured will a horse vomit? Of course he will not, because he cannot, and yet here was a report of one doing that very thing. Lobelin sulphate is all right in its place but it certainly has no place in a case of this kind.

The doctor gave the horse arecolin under these conditions and told the owner that the horse would probably be dead by morning and he posted the horse next day and sure enough there was a rupture of the stomach. What else could there have been?

It is further stated that lobelin sulphate relieves excitement and spasms quickly and there is where we make an impression with the owner. If a stomach-tube had been used and the horse saved for the farmer, would it not have made a good and lasting impression? Is it impressions or good results that we want?

CARL VIERS.

Vermillion, S. Dak.

URETHRAL CALCULUS

I received a call about 10:30 one night to see a horse very sick with "colic." On my arrival I found a 1500-pound horse showing symptoms of abdominal pain. This horse was used for light truck work but, as this was Sunday he had made an eight mile trip to the country going in the morning and returning that evening when it was found he refused feed and water. An examination for bowel trouble showed that, if such were the case, it had not reached a stage to cause alarm. Aside from bowel symptoms there were other very noticeable signs, as violent straining with protusion of the penis and dribbling of a few drops of urine. I was told by the attendants that a few weeks previously he had shown some trouble voiding urine, but that, after cleaning his sheath, this disappeared. On rectal examination the rectum was empty, but I immediately noticed the

greatly distended bladder which, when palpated, caused the animal much pain. Examination of the urethra, so far as was possible in a heavily muscled horse, revealed nothing. On passing the catheter, a hard object was found obstructing the urethra, about seven inches below the arch of the ischium.

A calculus was at once suspected, and the horse was taken to the hospital and prepared for urethrotomy, which was carried out as follows:

With the subject confined in the stocks and the use of a twitch and a local anesthetic, sufficient restraint was provided. After careful antiseptic precaution, the assistant passed the catheter and held it against the obstruction. A two-inch incision was made directly over the obstruction, which was now easily palpated. The incision was carried on down through the connective tissue and muscles through the urethral wall until the removal of a calculus was effected and the immense quantity of urine was allowed to escape. Drainage was then provided by making the lower termination of the incision so that the skin incision extended an inch below the opening in the urethra. It was then closed with four interrupted sutures.

Attention is called to this case for three reasons:

1. Because it is a case not seen every day.
2. The operation was performed with the subject standing.
3. It shows how acceptance of the owner's diagnosis or a hasty, careless examination might have been the cause of embarrassment later.

Five weeks later I was called again to see the same horse and again found a calculus that had passed the location of the first one so that it had to be removed through an incision in the body of the penis. This calculus was as large, if not larger, than the first, thus showing that the first operation caused no stricture. The horse is now making a nice recovery. I might add that in both instances rectal examinations were negative. The question arises, "How long does it take for an urethral calculus to develop?" R. B. Rice.

Lima, Ohio.

A VERSATILE CHAP

Some time ago I was called to a small town to make a tuberculin test on some cows for interstate shipment. Soon after my arrival, I met a registered non-graduate veterinarian. In talking with him of his work, and such other matters as practitioners discuss when they meet, I was surprised to find that veterinary work was only one of his various occupations. He stated that he was an auctioneer and made the best money at that. He was a horseshoer and worked at that some, besides running a hotel. If business in any of these lines became dull, he played the fiddle for country dances.

I happened to stop over night in his town recently and on inquiring about the doctor was informed that in addition to the above-mentioned duties, he was city marshal, deputy sheriff and special officer for collecting automobile taxes.

J. E. Nance, D. V. S.

Anadarko, Okla.

CAUSTICS IN THE TREATMENT OF FISTULOUS WITHERS

I have at hand a copy of Merillat's "Fistula and Poll-Evil," and in a general way I am well pleased with the work. However, I take exception to the statement made on page 69, which is as follows: "As regards the application of caustic chemical substances into tracts, we doubt if there is any charlantry, ancient, medieval or modern, that savors more of cruelty and malpractice. The caustics—arsenic, copper sulphate, lye, corrosive sublimate, caustic lime, zinc chlorid, etc., etc., after dissolving in the albuminous secretions overflow the surface of the body, cause severe pain, prolonged discomfort and permanent blemish. Often large patches of integument slough away."

While the statement is true regarding some caustics, Major Merrilat should not condemn all caustic substances for the treatment of fistulous withers, without having tried them. I have stated fully, in the December issue of the journal, my opinion of the use of concentrated lye for the treat-

ment of fistula and also details of the manner in which it should be employed. I take this occasion to repeat that it is a humane method of treatment when properly used and one that is very practical to employ by the practitioner

Doctor Jungerman's Hospital.

who is not a surgeon. Surface irritation and subsequent destruction of tissue as is exemplified in the illustration on page 71 of the afore-mentioned work, is an unpardonable offence that is due to ignorance or neglect on the part of the operator.

Hiawatha, Kansas. J. G. Jungerman.

LAMENESS DUE TO CANKEROUS GROWTH

April 4, 1917, a mule was reported as lame in the right foreleg. Examination disclosed foot lameness. The horny frog was ragged and torn and on paring away the loose fragments, I found that it had been punctured and almost the entire frog undermined with canker. After stripping off the horny frog, and trimming away such protruding portions of the raw, cankerous growth as seemed to hinder proper dressing, I applied formaldehyd and a bandage. On April 6th, I curetted the dead tissue and applied the following mixture:

Salycilic acid	.60
Turpentine oil	1.20
Oil of tar	1.20
Pine tar q. s.	4.80

The mixture was applied daily, pushing it well into the bottom of all crevices, placing a pad of oakum over this and over all a bandage.

April 12, signs of healing noted, loose fragments of tissue clipped and curetted.

April 20, the heel showed signs of contracting and so put on a shoe with clips on inside of quarters, spread the heel under one-half inch, removed loose tissue.

April 27, the healing process progressing satisfactorily but the wound did not look so well, so changed the dressing and used 25 per cent phenol in olive oil. The wound cleared up and assumed a clean, healthy color.

May 10, returned to dressing No. 2.

June 5, shod with leather, tar and oakum and turned to light duty.

July 3, still doing duty, frog sound and hard, leather removed.

John P. Gould.
Camp Stotsenberg, P. I.

SPECIMENS FOR LABORATORY EXAMINATIONS

(*Continued from page* 56)

theories connected with his work. In order to reduce these problems to the minimum we favor a general classification of diseases and from these offer suggestions for obtaining and forwarding specimens. For this purpose we divide the diseases into the following:

Group 1.—Acute infectious diseases. Anthrax, malignant edema, black leg, hemorrhagic septicemia, influenza and many other diseases of microbic nature are best handled by forwarding blood in sterile containers or tissue in fluids or inflammatory exudates.

Group 2.—Acute exanthematous diseases. Variola of the different animals, foot and mouth disease, hog cholera and other virus diseases do not come under the scope of laboratory diagnosis. The negativeness of the specimen, however, is an aid to the clinical findings.

Group 3.—Acute infectious diseases with localization in certain organs. Strangles, malignant catarrh, contagious abortion in cattle. These are not in the sense "blood-borne," but have, as in diphtheria in man, purely local manifestations immediately. Smears taken from the local point of involvement serve the purpose. In abortion the vaginal secre-

tions should be forwarded in sterile containers. Blood likewise for complement-fixation tests.

GROUP 4.—Infectious diseases with special involvement of the nervous system—rabies and tetanus. In these cases the brain should as a whole be forwarded. Medico-legal cases necessitate the forwarding to the laboratory of tissues located at the point of original infection.

GROUP 5.—Chronic infectious diseases. Tuberculosis, actinomycosis, bactriomycosis, glanders and other infectious granulomata are best handled by shipping the tissue as a whole or excisions of the granulomatous masses. In the case of glanders the blood should also be forwarded for complement-fixation tests.

GROUP 6.—Infectious diseases due to protozoa. Pyroplasmosis, trypanosomiasis, the leukemias and anemias can best be handled by the blood-smear method.

GROUP 7.—Diseases of deranged metabolism do not come under the laboratory sphere.

GROUP 8.—Disease due to the higher animal parasites—nematodes and plathelminths. The shipment of the contents of the alimentary tract if the parasite makes this his habitat permits the microscopist to recognize the eggs even though the mature or adult parasite be not found. When parasitic disease is suspected it is well to also furnish blood smears, as the presence of an eosinophilia often assists where the ova are very scarce.

GROUP 9.—In cases of suspected poisoning the stomach should be tied off at both ends and with its contents forwarded to the laboratory.

GROUP 10.—In cases where the drinking water is suspected a specimen of the water should be forwarded for examination.

In conclusion we desire to emphasize the fact that not only is the clinical laboratory that specializes in this field entirely, your chief aid and support in the practice of your profession, but that it likewise acts as your protector and buffer. It enables you to make your statements unreservedly, knowing that the scientific branch of your profession has backed up your observations and stands back of you in the maintenance of your position before your clientele.

DISPENSING FEES

(*Continued from p. 52, January issue.*)

In localities where it is customary for the practicing veterinarian to supply all the drugs and other articles used in the treatment of disease, he does not, in many instances, receive enough profit on his investment.

In many localities it has become the custom for veterinarians to supply these articles much as a grocer supplies his trade. A client calls at the doctor's office, describes a case, and the veterinarian gives him a bottle of medicine for fifty cents, or perhaps a dollar.

This is not as it should be. The veterinarian should not be satisfied with a living profit on the drugs he furnishes; he should also demand compensation for his knowledge in correctly dispensing the drugs. He should always figure his fee upon the basis of prescription service. If he wrote a prescription for the medicine he would naturally make the regulation charge of a dollar. In addition to this the druggist would charge from thirty-five cents to a dollar for compounding the prescription, depending upon the ingredients. As veterinary prescriptions usually contain large quantities of drugs the charges are correspondingly high.

Under the prescription custom of practice the client's medicine costs him, all told, from $1.25 to $2.00 a bottle. In localities where the practitioner is in the habit of dispensing his own drugs, the same bottle of medicine would, in many parts of the country, cost the client only about fifty cents. This is a weakness in the dispensing end of veterinary practice that should be eliminated. The veterinarian should charge a reasonable fee for compounding the prescription, in addition to a reasonable profit on the drugs.

The charge for a bottle of medicine or other form of medicament need not always be in even figures, such as fifty cents, seventy-five cents, or a dollar. The druggist's charge is usually in un-

even figures, and the veterinarian should follow a similar plan in charging for the drugs which he dispenses. For example, a veterinarian has been in the habit of furnishing his clients with a bottle of a certain liniment for fifty cents. Unless he is selling his clients almost pure water he is not figuring anything into this cost for professional ability; he is making only a few cents profit on the drugs and container.

But let him add to this the usual druggist's fee for compounding the prescription, say thirty-five cents, making the bottle of liniment cost eighty-five cents to the client, and he will add considerably to his income. Let him do this with everything he dispenses. Almost any fair practice results in dispensing five or six hundred bottles of medicine, several hundred tins of ointments and several hundred boxes of medicinal powders during the course of a year. If the practitioner gets the druggist's fee, or even a part of it, on these several items he has an increased earning of at least three or four hundred dollars annually, possibly in many cases, a thousand dollars.

This is not only legitimate; it is just.

There is no good reason why the veterinarian should donate his ability to dispense intelligently and correctly.

An item that has had much to do with this custom of selling medicine for a small profit, is the proprietary formulae that are so abundantly and so alluringly advertised and furnished by nearly all pharmaceutical houses. These come put up in attractive containers, with the practitioner's name on the label. These formulae range from colic mixtures to heave remedies, and as they are cheap and easy to handle some veterinarians use them almost entirely. This practice is to be deplored. It not only takes away a considerable part of the possible earnings that the practioner could have; it also makes him a poor practitioner, eventually.

If certain pharmaceutical concerns should go out of business some veterinarians would find it almost impossible to practice!!

M. R. STEFFENS.

Brillion, Wis.

(*To Be Continued*)

LIVESTOCK ON THE FARM

(*Continued from page 74*)

ral-fold purpose of livestock on the farm: (1) to furnish power—the horse; (2) to provide protein food for man—meat, milk and eggs; (3) to supply fatty food—butter, lard and tallow; (4) to yield material for clothing—wool; and (5) to conserve soil fertility.

The fact is emphasized that livestock offers the farmer an avenue of escape from the poverty which surely follows excessive grain farming without a proper return of fertility. Moreover, the raising of livestock promises increasingly rich returns. The limits in the possibilities of livestock farming are yet far from being reached. The raising of stock makes possible the utilization of much hilly, and mountainous land for grazing which cannot be farmed profitably by the crop-rotation system; it also affords a means of using refuse grain and aftermath which would otherwise not be used.

More equitable distribution of labor; throughout the year; less expense in harvesting and marketing grain, hence less capital invested in machinery; and the use of waste feed, are among the advantages urged by the author in favor of livestock farming. The cost of fencing, one of the most serious handicaps in establishing a stock farm, is discussed and practical advice given relative to building and maintaining fences.

In discussing the profit and economy of livestock raising, considerable importance is attached to the fact that much of the food eaten by stock is returned to the soil—four-fifths of the food consumed being restored with the addition of bacteria, which develop in the alimentary tract of the animal by the hundreds and millions. These germs mingling within the soil furnish mineral plant food direct, and work day and night liberating and gathering plant food, causing the plants to thrive better and sell for more. Thus it is that the livestock farmer grows richer and the grain farmer, after the first few years, grows poorer.

Crop rotation is especially necessary with stock farming, and under this head much valuable advice is given as to the

best methods to employ to restore the elements taken out of the soil by the previous crop.

The livestock farmer is in a sense a manufacturer. He takes the grain and converts it into a higher priced article. He makes a finished product out of the raw material, thus enabling him to get larger returns from his farm.

Various chapters in the book are devoted to the discussion of raising horses, cows, sheep and poultry, and the scientific raising of swine is discussed at great length. All in all, the book is replete with information of value to all engaged in the raising of livestock on either a large or small scale.

BALANCED AND UNBALANCED RATIONS

The paper by E. B. Hart, E. V. McCollum and H. Steenbock and G. C. Humphrey* is an important contribution along the line of physiology and has a distinct relation to toxemia. The summary of the authors is as follows:

"This paper summarizes the results of further studies of the physiological value of restricted rations. The data presented are limited to observations on growing and reproducing heifers, and are especially concerned with the effect of the nutrients from the wheat and corn plants.

"Restriction to the wheat plant as a source of 'balanced' nutrients (wheat grain plus wheat straw) did not sustain growth with Holstein heifers. Such animals also failed to show estrus and could not be bred.

"Marked pathological conditions resulted, such as blindness, feeble and emaciated condition and abnormal excitability followed by collapse. Evidence is presented which fixes the responsibility for such a condition on two factors in the ration: (1) poor salt mixture and (2) inherent toxicity in the grain.

"Improvement of the ration could not be made by additions of salt alone.

"By the use of corn stover as a roughage in place of the wheat straw, growth was sustained but reproduction was only partially successful, depending upon the stamina of the mother. Where reproduction was successful in the first gestation period, it failed in the second, owing to the cumulativie effect of the wheat toxicity.

"By the use of alfalfa hay to take the place of one-half of the wheat straw, results similar to those with corn stover were secured. Growth was splendid, reproduction normal in the first gestation period, but weakness appeared in the second gestation. The alfalfa and corn stover introduced a better salt mixture, a little different protein mixture, and probably a more plentiful supply of growth-promoting substances, all of which, according to our hypothesis, would either individually or collectively improve the ration, but not necessarily make it perfect. It might still fail if the mass of toxicity were too large.

"Baking the wheat grain did not improve it.

"The particular effect of these all-wheat-grain rations was a cause of marked histological changes in the nervous tissue of the offspring. The motor cells partly degenerated and the spinal cord showed a more or less edematous condition. This was analogous to our observations on swine with wheat-grain feeding. On wheat-grain and wheat-straw rations growing heifers also showed symptoms of nerve degeneration, as evidenced by blindness and great excitability. The causes of the disturbance were due to the inherent toxicity of the wheat grain and not to the deficiencies of vitamines.

"Corn-grain plus wheat-straw allowed sustained growth, but at a slow rate. The offspring were weak or dead. Additions of salt to this ration made it normal, indicating that this was the only factor needed for perfect nutrition with this ration.

"A physiologically complete ration such as the corn-grain and corn-stover mixture could not be disturbed, at least in a single gestation, by altering the calcium-magnesium ratio through

* Jour. Agrl. Research, 10: 175-198, pl. 18-32.

the addition of magnesium salts. Even the addition of mineral acids to this ration, in such quantities as to make the urine of the individuals receiving it acid to litmus and rich in ammonium salts, did not disturb its nutritive completeness.

"The addition, however, of wheat embryo to a corn ration did cause disturbances, bringing about early abortions. This was due to the high content of the toxic material of the wheat kernel.

"Considerations of the influence of such investigations on practice are also presented."

LIVESTOCK POISONING

(*Continued from page* 80)

bore, greasewood, Russian thistle, cow herb. larkspur (six species are given), monkshood, wild cherry, lupine, loco weed, buck bean, snow on the mountain, sumach, poison ivy, cowbane, Indian hemp, swamp laurel, milk weed, flowering night shade, buffalo bur, black henbane, jimson weed, thorn apple, woody aster, sneezeweed, cockle bur, Colorado rubber plant. Many of these plants are illustrated. The accounts of the different plants are concise, not only in regard to character, but the symptoms of poisoning. The authors have a useful table showing the altitudes at which the different plants occur.

TREATMENT OF PASTURES

Dr. E. W. Murphy[1], in an article, found a remarkably low percentage of "rickets, cribbles and paralysis," states the "fresh succulent foods contain protective substances or vitamins, which are essential to life."

In impoverished soils during drought times there is a paucity of these "protective substances." Hilda Kincaid under the direction of Professor Osborne found a remarkable low percentage of important minerals in Victorian grasses like the kangaroo grass. It is also stated by the department of agriculture of New South Wales that where bone-chewing in cattle is prevalent and "stiffness" and eventually death follows, the herbage is remarkably deficient in phosphorus. In New Zealand the administration of a syrup of iron and phosphorus to cows sick with "bush sickness" gave good results, and a lick made up of lime salt and perchlorid of iron was found to be very beneficial. In the different forms of paralysis and impaction called by the various names of "winton disease," "Yambuk disease," "cribbles," etc., there is one constant factor of low content of phosphoric acid in the herbage, and in such case the plant is ill nourished and probably deficient in vitamins. The author found beneficial effects following the use of bone meal as a top dressing. He contends that by properly treating the paddock the disease known as paralysis can be prevented.

[1]Journal Dept. Agrl., Victoria, 15: pp. 449-456.

THE WESTERN WATER HEMLOCK

Dr. A. C. Jacobson[1], of the Nevada Agricultural Experiment Station has made a notable contribution on the chemistry of the poisoning from water hemlock or cowbane. The species studied by the author *Cicuta Occidentalis* of the *Vagans* group. The author believes that *C. Occidentalis, C. Vagans* and *C. Sonnsi* are not distinct types. The western hemlock he thinks is not entitled to be called a perennial, as it does not live for more than one year. In regard to the poisonous principle he says: "When the water hemlock rhizome, described in the foregoing section, is cut in two, drops of a yellowish balsam-like liquid ooze out upon the cut surface. A penetrating aromatic odor is observed which is characteristic of this substance. In about a minute the light-yellowish color of the droplets changes to light red, and reddish brown. This color change is not produced by light nor is it an oxidation process."

"This yellowish viscid liquid is the poisonous principle of the plant. It is also found in the stem, particularly in the lower portions, but in relatively small amount. A Frenchman by the name of M. Brandes, recorded by Trumel, named this poison *cicutoxin*. At least thirty-eight years later, Prof. Boehm of Dor-

[1]Technical Bull., Nevada Agrl. Exp. Sta. 81: pp. 1-46.

pat, Russia, apparently not aware of the Frenchman's name for the substance, also gave it the same name. The name cicutoxin has since been woven into the literature so extensively that it would hardly seem advisable to rename it, although this could now be done upon a rational chemical basis."

In regard to the toxicology the author records some valuable data as follows:

"Symptoms: The symptoms of cicutoxin poisoning may be divided into three stages; a prodromal, a paroxysmal, and a paralytic. The prodromal stage is the time precursory to visible symptoms, and embraces a period of from twenty to forty minutes after the cicutoxin has been administered per os, or hypodermically. This stage represents the time required for the poison to be absorbed either from the alimentary tract or the tissues into the blood stream. The animal appears normal in every way with the exception that there is a slight increase in the rate of respiration and a certain twitching of the muscles of the mouth and ears, and also, in certain cases, there seems to be an immediate nervous disturbance sometimes causing nausea and vomiting, and sometimes a forcible expulsion of the contents of the colon and bladder. The phenomenon is not characteristic of any one class of animals, but is rather idiosyncritic. When the poison is administered intravenously, the animal at once passes into the second or paroxysmal stage. In human cases, abdominal pains have been recorded during the latter part of the prodromal stage."

"The paroxysmal stage begins with a strong salivation and tremors of the entire body. Then the animal may make a sudden crouch and with a tremendous leap goes into the first convulsion, or the convulsion may come on gradually, by a slow, involuntary extension of the limbs and a bending backward of the head and back. This tonic spasm may last from a few seconds to about a minute, during which time the whole body is rigid, respiration suspended, and at the height of the spasm, the heart stops in diastole, so that the animal appears dead. The author finds that, with cats and rabbits, the first paroxysm differs from the succeeding ones in that the first is a tonic spasm, while the succeeding ones are clonic and accompanied by trismus. After the first spasm has subsided the animal regains its feet and may walk a few steps, usually with staggering gait, and will appear normal for a period of from one to fifteen minutes, depending upon the size of the dose. For a lethal dose these rest intervals will grow shorter and shorter until the paroxysms are almost continuous, and the animal is said to be in the third or paralytic stage."

The treatment to be recommended is in an unsatisfactory state. There is no specific antidote for the poison. An emetic should be given as soon as possible. A decoction of tobacco leaves in warm water or dilute vinegar seems to have given better results than an emetic administered hypodermically. Narcotics like morphine are useful to diminish the paroxysms. The following case of poisoning and the antidote given will be of interest:

"A daughter of Martin Mueller and the two daughters of George Maurer, twins of five years, also ate of these roots, but sparingly. These three suffered epilepsy, but in a milder form. An antidote dissolved in vinegar was given; all vomited, and in a short time fully recovered."

The work of Professor Jacobson is to be highly complimented.

POISONING IN A PASTURE.

Dr. D. L. Fry, of Custer, Michigan, sends the following letter and specimen of Black Night Shade (*Solanum nigrum*):

"I have been having some trouble of late with cattle dying suddenly while on pasture. The pasture these cattle die on is rather a level tract of land of which some is improved and some is unimproved and is a little wet in spring or through the rainy season, but still produces fairly good crops of hay and oats, as well as potatoes. I am mailing you a specimen and would like to know what you think as to whether it is deadly night shade or if cattle will eat this when pasture gets short. It grows on the above mentioned land.

"The autopsy showed the mouth, tongue, throat and muscles running down

the neck and into the heart were very dark, the heart sack and heart were very dark from inflammation. The lungs seemed normal."

Cattle under stress of hunger will eat the Black Night Shade or stubble berry. The fruit of a form of this plant is used for preserves. I doubt whether there is much in the way of a toxic substance in the fruit. Certainly the ripe fruit when fed to animals as we did in our laboratory does not produce poisoning. The Black Night Shade has long been regarded as poisonous. Probably the laity in times past made a mistake in the identification of the plant. It is probably that the laity in early days mistook the Black Henbane for the Black Night Shade. The berries of the former are known to be toxic. It is another matter when it comes to the leaves of the Black Night Shade. These are poisonous. The leaves contain the alkaloid, *solanin*. The symptoms of poisoning are stupefaction, staggering, loss of feeling and consciousness. The pupils of the eye are generally dilated. Death is due to paralysis of the lungs. Cases of poisoning from this plant have been reported from time to time.

PELLAGRA AND SIMILAR MALNUTRITIONAL DISEASES

Dr. L. W. Sambon, who originated the hypothesis that pellagra was an insect-borne disease has made an investigation of the disease in the British West Indies and states that the disease exists there and has for some time. Dr. Sambon does not agree with those who classify it as a "deficiency" disease. He does not adduce much evidence according to the paper published. "Reports on Pellagra in the West Indies" is only a preliminary report.[1] The extended report will no doubt give more details concerning the theories of the disease. Ernest S. Reynolds,[2] in a very excellent address on the causes of disease discusses the subject in an admirable manner, but the matter that interests us in this connection is food poisoning, due to improper feeding. Many abnormalities of blood pressure are due to improper feeding. He concludes that disseminated sclerosis is caused by a poison acting on certain special nerve tissues. How this poison is derived should be made the subject of important research. W. H. Wilcox[3] discusses some of the diseases produced by improper food rations. He calls attention to the fact that anti-beriberi vitamins occur in the aleurone layer of the grain beneath the husk, and also in the germ of the grain. British flour, owing to excessive refinement involving the almost complete removal of the aleurone layer with the husk, and also of the germ is not protective against beri-beri. The "dhall" in the Indian dietary is protective against beri-beri. For these reasons the Indian does not run the risk of getting beri-beri. Investigations carried on show that when "dhall" oatmeal, as well as yeast, was given to prevent beriberi, the yeast plant being rich in vitamins, extract of yeast in Mesopotamia is used under the name of marmite—the disease has been greatly reduced.

[1]London Lancet, 1917, p. 866.
[2]London Lancet, 1917, p. 703.

EQUINE INFLUENZA DISCUSSED BY CHICAGO VETERINARIANS

The regular January meeting of the Chicago Veterinary Society was held at the Great Northern Hotel, Tuesday evening, January 8th. The feature of the program was an address by Dr. C. A. Zell, describing his laboratory investigations of equine influenza.

Dr. Zell states that it is his conviction that the bacillus of Schütz, the bacillus of Lignieres, the bodies of Gaffky and Lührs and others which have been described as factors in the causation of equine influenza are but secondary factors and that the primary cause is a filtrable virus. He explained that he had extracted nasal and pulmonary discharge from cases of equine influenza and filtrated the extracts through a Berkefeld filter and that the injection of this bacillus-free filtrate produced an extraordinary reaction, great local swelling, heat and pain, profuse nasal and lachrymal discharge, marked cough, high temperature and complete inappetence. A second injection a week later produced the same symptoms of less severity.

[3]London Lancet, 1917, p. 677.

Third and fourth injections gave no reactions.

Dr. Zell mentioned that none of the bacterins heretofore used for the prevention of equine influenza have been more than moderately successful and that most of them have not possessed the curative value reasonably expected from the bacterin.

He stated that he had prepared bacterins from the organisms mentioned above and also from a large number of others, uniformly found in the discharges of subjects affected with influenza, and that to this bacterin he had added the filtrate containing the unidentified virus of the disease and that such bacterins had been practically 100 per cent effective as a prophylactic and had a marked and prompt curative effect.

Dr. J. M. Parks stated that he had used the bacterin prepared by Dr. Zell over a period of two years, but had used it all told on one hundred cases, since he had used it only in the very severe cases of eqine influenza and that he considered it as having far more curative power than any other bacterin he had ever used, or in fact than any other line of treatment and that in severe cases he relied upon this bacterin and nothing else. His loss in the one hundred severe cases was just two per cent. Dr. Parks had not used it as a prophylactic measure.

Dr. A. C. Worms stated that he had had considerable experience with Dr. Zell's bacterin as a prophylactic agent and regarded it as by far the best bacterin he had used for that purpose. He thought it possessed great value as a treatment for all cases excepting those having pulmonary complications, and in these he considered it ineffectual.

Dr. Worms does not believe that an uncomplicated case of equine influenza is a serious matter. He stated that laminitis, articular rheumatism, pneumonia, diarrhea and cellulitis were common complications in his practice, and that of all these complications, he considered cellulitis the most serious.

Dr. Geo. P. Frost stated that he had been called to a barn in which there were seventy horses, sixteen of them affected with equine influenza. He put the sick ones on bacterin treatment, using Dr. Zell's treatment, and gave the well animals the same treatment as a prophylactic. All the sick animals recovered and there was no further extension of the disease.

Dr. Jas. Robertson in a general discussion of equine influenza became somewhat reminiscent and told of the days years ago when Chicago veterinarians were treating a great many more horses than they are today and when he had contracts for a number of large barns containing hundreds of horses each. He stated that at that time his treatment for equine influenza was good ventilation and good sanitation. That he took affected cases immediately from the crowded barns, blanketed them and stood them in an open shed, regardless of the weather, and that his losses from this disease were almost nil, and what was even better for the owner, the disease ran a very rapid course and recovery took place in most instances in a few days.

Dr. C. A. White renewed a discussion under consideration at a former meeting, as to whether or not dogs suffer from antrum abscesses, and presented several dog skulls to illustrate his contention. Dr. White holds that the term "antrum abscess" is a misnomer or a wrong diagnosis and that the condition is really an alveolar abscess. The skulls seemed to bear out his statement.

THE LIAUTARD LIBRARY — ARMY HORSE TRANSPORT SERVICE

The December meeting of the New York City Veterinary Medical Association was held December 5th in the Carnegie Laboratory.

Dean Hoskins of the New York State Veterinary College at New York City had sent out announcements inviting all veterinarians in the vicinity to be present at the opening of the Alexander Liautard Library, the hour and a half preceding the meeting.

This was a very pleasant function, many ladies being present as well as some of the good friends of the school who are not of our profession. The library meeting was called to order by

Chairman Dr. George Berns, who reviewed briefly the history of the library; how Dr. Liautard had, through Dr. Ellis, offered to present his library to the college, and that shortly following this good news Drs. Ellis, Gill and Hoskins had conceived the idea of using the unusued portion of the fund subscribed for the entertainment at the fiftieth anniversary of the A. V. M. A. held in New York City in 1913. Accordingly, they obtained the consent of those who had contributed to the fund, and as a result $870 was put aside for the expense of importing the books and arranging the library nucleus. The books were finally landed in America, and the matter laid dormant until Dean Hoskins renewed interest in it, and he has now added considerably to Dr. Liautard's 3000 volumes.

Our good and true friend, Dr. Munn, spoke next, particularly of the beautiful character of Dr. Liautard and what he did for the character of his students. He expressed delight that his sister profession (Dr. Munn is a physician), in which he has taken such an interest for many years, is doing such splendid work in the conservation of livestock.

Dr. Thomas Smith followed Dr. Munn and pleaded for the perpetuation and addition to the efforts of this great man and his followers, who brought the profession in this country up to its present high standard. Dr. Ellis and Dr. Cochran added words of history.

Dean Hoskins then told how Dr. Liautard had spent 60 years in gathering these precious volumes. His library contains books in five languages. This library has been materially increased by the books of the late Dr. Roscoe R. Bell and of some living authors. He spoke particularly of Maj. Merillat having recently added a copy of all of his works, and the Dean placed special emphasis on the fact that he wished it made use of by the entire profession, and that he had established a system whereby any veterinarian could borrow any of the books.

As the program was about to end Dr. Hoskins, after stating that there was a man in our midst who had practiced nearly 40 years and by diligence and thoroughness is now able to retire with a sufficient competence for the balance of his life; in order that he might have some knowledge of the respect and esteem in which he is held by the profession of his state and the nearby states, in the behalf of a few of his friends as a testimonial he presented to Dr. Goerge Berns of Brooklyn a silver water bottle and tray. It was plain to see that the surprise literally stunned the recipient and, while his face glowed with pleasure, he could only say, "Thank you," but the way he said it meant much.

Routine business completed, resolutions were presented and adopted expressing sympathy for Secretary MacKellar, who recently through accident lost his wife.

A paper was read by Dr. David McAuslin, "The Innocent Abroad!" The doctor having made seven trips to Italy on horse transports, his paper dealt with his experience on these trips, and it was very interesting. He described first the space a horse was given, 2 feet 4 inches wide and 8 feet long. Speaking of practical points that are of value in reducing mortality, he mentioned special attention to diet, mashes, plenty of salt; this is of particular value in reducing the number of cases of azoturia. Corn is a good appetizer for the western horse. Water frequently, the amount being guided largely by the temperature; in hot and sultry weather frequent watering is of great advantage.

Ventilation is an important factor, using judgment and caution so as to get the proper movement of air without draft. Since it is impractical to clean the stables daily, the manure should be daily disinfected to control flies, odor, etc.

Keeping each horse in its own stall adds to its comfort and stamina. He believes strychnin has been disastrously used in pulmonary and heart cases.

Abortion on shipboard is common, and it is a mistake to ship mares in foal. Surgery is impractical, excepting the opening of abcesses such as stran-

gles, or those that result from chaffing.

He described the unloading of the horses and mules from the steamers into the cars by the Italian soldiers as being very brutal. He told of some of the barbaric treatments administered by the sea-going quacks, a trick that a particularly reprehensible one played to get exhausted animals up at the end of the voyage so that they might land and enable him to get his bonus consisted in giving grain doses hypodermically of strychnine and injecting aqua ammonia and turpentine into the urethera. Such acts naturally causes serious reflection on the American veterinarian by those who do not know the difference between the capable graduated man and the unscrupulous fakir.

In concluding his remarks, the doctor made it plain that capable veterinarians and good assistants could render great service on a transport.

Dr. E. B. Ackerman also spoke on the importance of ventilation on the transports. Following this paper a form letter was then read by the secretary. It had been prepared by the committee to arrange for substitutes to care for the practice of those gone into military service.

Military matters were then discussed and Doctor Hoskins stated that there was a movement on foot to have Congress establish a separate veterinary corps the same as the British Army has, as the wisdom of this has been conclusively proved. Veterinary students have been exempted by order No. 151, which also exempts ammunition workers unless unusual conditions make it necessary to call upon them.

The election of officers resulted as follows: President, Dr. Charles Chase, Bay Shore, N. J.; Vice President, Dr. Thomas Smith, Jersey City; Secretary, Dr. Robert MacKellar, New York City.

J. F. De Vine.

Goshen, N. Y.

Then it's Tommy this, an' Tommy that, an' "Tommy, 'ow's yer soul?"
But it's "Thin red line of 'eroes" when the drums begin to roll.—Kipling.

WHAT SHOULD WE LEARN ABOUT DRUGS?

The following excerpts from Milks' "Practical Veterinary Pharmacology and Therapeutics" is thought to be of such interest and value as to warrant reproduction here.

"It is a problem to determine just what should be learned about drugs, because the subject of materia medica is so extensive. There are many things impossible and unnecessary to learn. Thus it is not necessary to learn the pharmaceutical definition, place of growth, manner of collection and preparation, physical properties except of the more important ones, microscopic anatomy, melting points, adulterations, tests, etc. These are all valuable data for the pharmacists and chemists upon whom we must depend for our medicines. We should, however, learn—

"1. The official and Latin name, and common synonyms, because the Latin name is used in prescription writing and the English name and synonyms are used in the literature.

"2. Source. So far as the most important drugs are concerned.

"3. Characteristics. Of only the most common and easily determined drugs. Form, color, taste, etc.

"4. Composition of the inorganic. So far as the composition would influence its use or comptability.

"5. Active ingredients of organic preparations: alkaloids, glucosides, resins, etc. It is necessary for us to know upon what a drug depends for action, as well as the source of some of the principles which are used alone. The composition is also important from the standpoint of compatibility.

"6. Solubilities. So far as is concerned in the use of drugs.

"7. Incompatibilities. The incompatibilities that are of importance in prescribing or using the drugs should be known.

"8. Form in which drugs may be obtained and administered. Preparations and their strength and doses, especially of the official and more commonly used unofficial preparations.

"9. Physiological or pharmacological action. Method by which the drug acts.

Its action externally and locally.

"10. How it is absorbed and eliminated.

"11. Untoward or side actions.

"12. Toxicology.

"13. Uses or therapeutics.

"14. Contraindications.

"15. Administration."

THE VETERINARIAN AND THE LAW

(*Continued from page* 54)

practitioner are not limited to his patrons. Having been entrusted with certain privileges by society, he is also put under obligation to protect society. By enactment he is generally required to report the presence of infectious disease, and his failure to do so is made punishable. In addition to the statutory obligation mentioned, the law requires that he must use reasonable care to prevent the spread of infectious disease. He should use reasonable measures to insure that the disease does not spread from his patients to others, and in the absence of legal governmental authorities he would be justified in acting as a local health officer and compel precautions to be taken by the owner of the sick animal. It frequently happens that the owner objects to quarantine, and that therefore pressure is brought to induce the practitioner to refrain from reporting the presence of infectious disease. If in consequence of his neglect to make report the disease spreads to other animals the veterinarian may and should be held liable for all damage resulting. For example, if as a result of his conniving, a disease spreads to two or three herds in a community, and fifty animals die, the guilty veterinarian may be held to the individual owners for the value of the dead animals, plus the expenses for care and treatment and loss of use of animals, plus the decreased value of the animals that recover. In addition, by civil suit the governmental agency interested might recover all the expenses made necessary by the larger outbreak, and the practitioner would also be liable to punishment as a criminal.

There is a certain species of animal familiarly known as "A Smart Alec." If he happens to hold a license as a veterinarian and gets caught in such a case as has just been described, he laughs in his sleeve and snickers, "They can't prove that I knew that the disease was infectious, and therefore they can't hold me." In order to hold him liable it is not necessary to show that he knew the nature of the disease he was treating. As a licensed practitioner he is presumed to have ordinary professional knowledge, and if the symptoms and circumstances are such as to lead a properly qualified practitioner to believe that the disease is infectious it would be presumed that he did so know, and he would therefore be held liable.

In the restriction of infectious disease time is important, just as it is in case of fire. A false alarm is preferable to delay, and in a doubtful case a provisional notice should be sent at once. A wise man will make sure that the gun he picks up is not loaded before he points it at his friend. If he neglects this precaution it will be no excuse in law or reason that "he didn't know it was loaded." The jury may think that the death of his friend is sufficient punishment and may therefore free him, but throughout his life he must remember that he is a criminal. That he didn't know that a case he was treating was infectious may be an explanation for a veterinarian's neglect of precautions, but it is no excuse if the circumstances are such as to raise even a reasonable doubt in the mind of one who is properly qualified. It is his business to know. That the user of protective sera does not know that the manufacturer who sells his products at suspicious prices is careless, and that the sera also bears harmful germs, is no excuse for the harm he does. It is the veterinarian's business to know, and a few damage suits may be the means of boring holes through the thick skulls of some of the members of the profession. Such suits will also tend to purge the ranks of pretenders.

In law veterinarians are classed as physicians, and the words of Hippocrates written more than twenty-three centuries ago are as applicable today as when they were written: "As upon the stage there are many who though they have the appearance and dress of actors are not real actors, so there are many physicians in name but few in reality"—and one of the aims of the law is to sift out this chaff.

Anthrax Products

Lederle

Simultaneous Vaccination

The Simultaneous Vaccination with LEDERLE'S Anti-Anthrax Serum and Spore Vaccine has established itself as a most effective and reliable method of preventing Anthrax in domestic animals.

Over three hundred thousand animals have been effectively vaccinated by the LEDERLE Simultaneous Method in Anthrax districts, and losses from failure of protection occurred only in isolated instances. On the other hand, this method of vaccination has also proven effective in checking further losses in actual outbreaks of Anthrax.

One of the greatest assets of this method of vaccination is **that direct losses from the vaccination have not been reported in a single instance,** which places the Simultaneous Method of Vaccination as the only absolutely safe procedure against losses sustained from the vaccination.

In localities where Anthrax is prevalent and occurs annually, the Simultaneous Treatment has gained popularity with the veterinarians, since it placed in their hands a method by which they could attain results not only in herds where the disease has not yet appeared, but also in actual outbreaks.

One of the most prominent live stock sanitarians from a State where Anthrax is the most prevalent disease, has expressed himself with regard to the Simultaneous Vaccination, as follows:

> "We have indisputable records that will absolutely demonstrate to the most skeptical mind that the simultaneous treatment, **especially where the serum is potent and where the vaccine is sufficiently strong,** that there is not any longer any necessity of extensive outbreaks existing in cattle herds."

The following statement is quoted from a circular of "Facts About Anthrax," published by the Agricultural Experiment Station of the University of California:

> "Vaccinations for Anthrax.—There are on the market several preparations for the prevention of Anthrax, but the only one recommended by this Station is Anti-Anthrax Serum used either alone or in conjunction with the Spore Vaccine."

Surely no better endorsement is necessary than the above quoted statements.

The advantages of this Simultaneous Method can be set forth as follows:

It confers immediate protection.
Requires only single handling of the animals.
Reduces the losses from vaccination to a minimum.

Double Vaccinations

(Attenuated Spore Vaccines)

In Anthrax districts where the disease has not yet appeared and the vaccination of the animals is undertaken early in the Spring, double vaccination with LEDERLE'S Attenuated Spore Vaccines has proven to be effective and to possess great advantages over the Pasteur method. The fact that the Spore Vaccines can be ac-

curately standardized to a definite dosage insures uniform immunity in the vaccinated animals and thereby greater resistance against the natural infection.

The statistical data available clearly demonstrates that double vaccination with LEDERLE'S Spore Vaccines has conferred upon the animals in almost every instance sufficient immunity to protect them against the subsequent exposures in Anthrax localities.

The advantages of LEDERLE'S Attentuated Spore Vaccines are their splendid keeping qualities together with an accurate standardization, and furthermore LEDERLE'S Spore Vaccines are so preserved as to prevent deterioration. These qualities prominently establish the product as superior to vaccines prepared by the Pasteur method, which cannot be accurately standardized and which deteriorate within a very short time after their preparation.

Treatment of Anthrax

With

Lederle's Anti-Anthrax Serum

Prior to the advent of LEDERLE'S Anti-Anthrax Serum in the United States it has been generally accepted that 90 to 95% of the affected animals succumb to the disease. During the past year the treatment of animals affected with Anthrax with Anti-Anthrax Serum has reduced the mortality to less than 30% and some veterinarians even claim that if the serum injections are made before the Anthrax germs flood the circulation, practically every animal can be saved.

It is essential to use liberal quantities of the serum for the treatment of Anthrax, the dosage depending upon the severity of the disease. In slighter cases the serum is administered subcutaneously, whereas in the more severe cases it is to be given intravenously in not less than 100 cc. doses, to be repeated in from 18 to 24 hours.

Quoting again from the circular, "Facts About Anthrax," published by the Agricultural Experiment Station of the University of California:

> "Doses for curative treatment are recommended as indicated on the label. The improved serum now on the market has great curative value and should be used in outbreaks whenever obtainable."

IMPORTANT

Veterinarians in Anthrax districts cannot better assist our government in the present great struggle than by urging stock owners to vaccinate their stock and by treating all cases of Anthrax with Anthrax Serum. SO DO YOUR BIT!

PRICES

SIMULTANEOUS VACCINATION—Package containing 10 complete treatments (100 cc. of serum and 10 cc. of vaccine) $4.00

ANTHRAX SPORE VACCINE (Double Vaccination)—Package of 2 vials containing Vaccine No. 1 and Vaccine No. 2, comprising 10 complete vaccinations $1.50

Package of 2 vials containing Vaccine No. 1 and Vaccine No. 2, comprising 20 complete vaccinations $3.00

ANTI-ANTHRAX SERUM—Package containing 100 cc $3.50

Orders or inquiries for discounts should be addressed to our General Selling Agents, Messrs. Schieffelin & Company, 170 William Street, New York, or to one of the following branches:

CHICAGO	KANSAS CITY	NEW ORLEANS
1133 Marshall Field Annex Building	Firestone Building 20th St. and Grand Ave.	1120 Maison Blanche Building

Lederle Antitoxin Laboratories

New York

Blackleg Filtrate—

Lederle

Those who have had actual experience with the control of Blackleg have long realized the necessity of a product which would *safely* and *effectively* immunize animals against the disease.

While it must be recognized that Blackleg Vaccine prepared in the usual pellet and powder form has given splendid results, however its shortcomings on account of its irregular immunizing action and the direct losses resulting from the vaccinations have caused many complaints against the reliability of the method.

Recognizing the shortcomings of the vaccine, investigators have been at work to develop a safer and more uniform product which would avoid losses from vaccination and at the same time confer to the animals an effective protection against Blackleg.

The development of BLACKLEG FILTRATE—LEDERLE has proven to fulfill the requirements of an effective immunizing product.

When we announced the successful accomplishment of LEDERLE'S Germ Free Blackleg Filtrate and offered it to the Veterinary profession, painstaking and unceasing research work had established with us the full conviction of the great advantages this product possessed.

The classical studies of Bail and others with aggressins of Blackleg and Foth's work with precipitates and filtrates of Blackleg cultures further substantiated the claims made for BLACKLEG FILTRATE—LEDERLE.

Since the introduction of this product, over five hundred thousand vaccinations with BLACKLEG FILTRATE—LEDERLE have proven its immunizing value, since even when used under the most adverse conditions the results have been highly satisfactory. Losses from failure of protection have occurred only in a few instances, and mostly in the first ten days following the vaccination, which represents the time before the immunity has been fully developed in the animal.

The extensive available data shows that only one-fiftieth of one percent of the animals vaccinated with the Filtrate, died of Blackleg, which

must be accepted as a remarkable record if it is considered that the vaccination has been frequently undertaken only after actual losses from Blackleg have occurred among the animals.

Veterinarians should not hesitate to use **BLACKLEG FILTRATE—LEDERLE.** It is not in the experimental stage. Its effectiveness has been conclusively proven.

It is strictly a laboratory product and therefore can be accurately controlled during the process of manufacture. This must be recognized as a great asset since other products used for vaccination against Blackleg cannot be subjected to such control.

The outstanding features and advantages of **BLACKLEG FILTRATE—LEDERLE** are:

1. It is an effective immunizing agent against Blackleg.

2. It confers an active immunity, which protects cattle against the disease for at least one year. According to a recent ruling by the United States Bureau of Animal Industry there is not sufficient evidence available to prove that any blackleg product will produce *permanent* immunity.

3. Since it does not contain the blackleg germ in any form, it cannot produce the disease; therefore, losses incidental to vaccination with the powder or pellet form are entirely avoided.

4. It is prepared in a concentrated form, is suitably preserved and will retain its uniform potency for an almost indefinite period of time.

5. It is tested by animal inocculation for safety and potency and is subjected to the various tests for sterility, after the filtration and filling process, in order to guard against any possible contamination.

BLACKLEG FILTRATE—LEDERLE is supplied in the special Lederle vial in three different size packages, as follows:

Package containing 10 c.c (10 doses)	$ 2.00
Package containing 50 c.c (50 doses)	8.00
Package containing 100 c.c (100 doses)	15.00

Orders or inquiries for discounts should be addressed to our General Selling Agents, Messrs, Schieffelin & Company, 170 William Street, New York, or to one of the following branches:

CHICAGO	KANSAS CITY	NEW ORLEANS
1133 Marshall Field Annex Building	Firestone Building 20th St. and Grand Ave.	1120 Maison Blanche Building

Lederle Antitoxin Laboratories

New York

Matters of Current Interest

Association Meetings

PROFITABLE AND INSTRUCTIVE PROGRAM AT SOUTHEASTERN MEETING

The second annual meeting of the Southeastern States Veterinary Medical Association was held at Hotel Patten, Chattanooga, Tenn., December 27-29, 1917, and was well attended by veterinarians from Tennessee, Georgia, Alabama, Mississippi, North and South Carolina and Florida.

Dr. C. A. Cary, in his presidential address, made mention of the following subjects: The lack of harmony existing between veterinarians, and the petty squabbles existing among practitioners and among veterinarians in official positions. He dwelt somewhat at length upon the veterinarian and the veterinary organization in the army. The American Veterinary Association came in for its share of mild censure in its lack of consideration of the South and the southern veterinarian. Measures for tick eradication, accredited tuberculosis-free herds and extermination of hog cholera, black leg and anthrax were subjects receiving commendation and need of the veterinarian's hearty support.

The president's address was taken exception to in a few instances by Dr. N. S. Mayo, who discussed some of the points in the address more or less in detail.

The subject of "Food and Drug Inspection" as presented by Mr. H. L. Eskew, State Food Commission, Tennessee, was much appreciated. The speaker elaborated quite extensively upon meat inspection and deplored the fact that his department had no provision for a veterinarian; that few inspections in the state were being made by veterinarians and that there was a sad lack of state law to assure better inspection. The paper was discussed by several members. Dr. Bahnsen, state veterinarian of Georgia, reported that the meat inspection service in Georgia was under the offices of the state veterinarian instead of under the food and drug department, as in Tennessee.

Among the most interesting and instructive features of the program was the paper on "Education of the Veterinarian from the Farmer's Viewpoint" by Dr. Tait Butler. He laid emphasis upon the fact that now as never before, the veterinarian needs a good training along animal husbandry lines, and that the more information he has upon farming in general, the more nearly he will come to fulfilling his mission and gaining the confidence of his clients.

"Important Considerations in the Control of Hog Cholera" was discussed by Dr. Robert Jay, federal hog cholera expert in Tennessee. A number of experiments were cited in showing some of the means of transmission of cholera and the need of using both sanitary measures and anti-hog cholera serum in the control of outbreaks. In the discussion which followed, Dr. Jacobs, state veterinarian of Tennessee, stated that in Tennessee serum injections were made only by veterinarians.

"Our Observations on Treatment of Infectious Abortion in Cattle" was quite extensively dealt with by Dr. H. Jenson, of the Jenson-Salisbury Laboratories. He reported that carefully outlined experiments and collected data showed that the use of abortion bacterins (dead cultures) had apparently materially decreased abortions and their consequences in the animals treated.

The evening of the first day was delightfully spent at a theatre party, given by Dr. F. W. Morgan, of Chattanooga.

Dr. H. C. Hutchens, assistant state veterinarian of Georgia, gave some very valuable information in his paper on the "Necessity for Municipal Abattoirs and State Slaughter House and Meat Inspections." He gave a number of concrete illustrations of what a number of municipalities were doing in this line. This paper was discussed more or less in detail by Dr. C. A. Cary, who by the use of a blackboard illustrated the type of abattoir used at Auburn, Ala.

Dr. H. K. Wright, of the Mulford Laboratories, discussed at length the work of the English commission on bovine abortion and their conclusions. From their observations, he was inclined to think that better

results might be obtained from using living cultures of B. abortus than of bacterins.

Dr. William M. Bell, of Nashville, exhibited many unique instruments which he and his brother had manufactured, improving and simplifying many operations by their use. The one arousing most attention was a large hog-cholera syringe with a double barrel, one inside of the other. The outer serving as a container and the inner as a syringe which was filled from the container without exposing the serum. Except for its size, it appeared to be very practical.

"The Veterinary Profession and Pathology" was discussed by W. H. Cheney, M. D., of Chattanooga. His paper consisted largely in showing the need for positive diagnosis in many cases requiring laboratory examinations and in complimenting the veterinary profession on its representative association and its keeping so well abreast of the times.

The subject of "Blackleg and Its Differentiation from Anthrax, Hemorrhagic Septicemia and Malignant Edema" was interestingly presented by Dr. W. A. Johnson, of the Purity Biological Laboratories. He reported excellent results following the use of blackleg serum and aggressin.

A round-table discussion was conducted by Dr. H. Jenson. The subjects calling for most discussion were internal parasites and so-called black tongue in dogs. The latter resulted in the appointment of a committee to find and report a suitable name for this common affection of dogs in the South. Drs. Major Schofield, Moses Jacobs and F. P. Caughman were appointed on this committee.

Twenty-five new members were elected to membership in the association, making the total membership 125.

Birmingham, Ala., was selected as the next place for the meeting, which will be held February 20, 21 and 22, 1919.

The resolutions presented by the committee embodied the following points: Thanks to the hotel and newspapers; respects to Mrs. A. D. Melvin and family; respects to Mrs. B. O. Mingo and family; approval of accredited tuberculosis-free herd plan; deploring the tendency to slaughter immature meat-producing animals; congratulations and assurance of hearty co-operation to Chief J. R. Mohler; thanks to Dr. F. W. Morgan for his untiring efforts in making the association's visit to Chattanooga a success; to urgently invite the A. V. M. A. to the South for its 1919 meeting. The association modified the latter resolution to make the place of meeting New Orleans.

The following officers were elected for the ensuing year:

President, Dr. F. W. Morgan, Chattanooga, Tenn.

First Vice-president, Dr. F. P. Caughman, Columbia, S. C.

Second Vice-president, Dr. J. S. Andrado, Huntsville, Ala.

Third Vice-president, Dr. Major Schofield, Miami, Fla.

Secretary-Treasurer, Dr. G. A. Roberts, Raleigh, N. C.

Resident secretaries:

Alabama—Dr. C. A. Cary.
Florida—Dr. Major Schofield.
Georgia—Dr. H. C. Hutchens.
Mississippi—Dr. W. L. Stroupe.
North Carolina—Dr. A. C. Jones.
South Carolina—Dr. M. R. Blackstock.
Tennessee—Dr. F. R. Youres.

Appointments on Executive Committee: Dr. Peter Bahnson and Dr. W. G. Shaw.

Following the day's program, a most happy climax was reached in a sumptuous and enjoyable banquet with Dr. H. Jensen acting as toastmaster.

The last day was occupied in a well planned clinic at the Veterinary Base Hospital at Fort Oglethorpe and in visiting various points of interest about Chattanooga.

G. A. ROBERTS, *Sec.-Treas.*

West Raleigh, N. C.

IOWA ASSOCIATION OF ANIMAL INDUSTRY FORMED

On December 29, 1917, at Des Moines, Ia., the organization known as the Bureau of Animal Industry Association was effected, the following officers being elected: President, Dr. J. S. Koen, Des Moines; vice-president, Dr. C. M. McFarland, Sioux City; secretary, Dr. Frank Jelen, Cedar Rapids; treasurer, Dr. F. T. Suit, Waterloo.

The objects of the association are to promote a spirit of friendliness and good fellowship; to co-operate with the American Veterinary Medical Association, or any other veterinary association and to affiliate with the National Association of Bureau of Animal Industry Veterinarians; to inform the public regarding the work and achievements of bureau veterinarians; to secure better public and professional recognition; to encourage the further development of veterinary knowledge and science and to present and discuss papers, and to uphold the Civil Service.

The prospects are for 100 per cent membership of bureau veterinarians within the state, bringing the total membership to ap-

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proximately 75. Invitations are being extended to all other states to form similar organizations and it is confidently expected that within a few months a national organization of bureau veterinarians will be effected.

ARMY VETERINARIANS ATTEND KANSAS MEETING

The Fourteenth Annual Meeting of the Kansas Veterinary Medical Association was held at Manhattan, January 1, 2 and 3, 1918. The program was one of the best ever offered by this association, but the attendance was light.

Among the subjects discussed during the meeting, the following deserve particular mention:

"The Veterinarian and the County Agent," by Dr. G. M. Potter, of the Extension Department of the Kansas State Agricultural College.

"Urethral Calculi," by L. D. Eastman.

"Some Observations on the Treatment of Digestive Disturbances in the Horse," by Dr. A. H. Gish.

"Use of Anti-Hog Cholera Serum and Hog Cholera Control," by Dr. B. W. Murphy, in charge of the hog cholera control work for Kansas.

"The Lederle Laboratories," by Dr. Bushong.

There are twenty-two veterinarians now at Camp Funston, near Manhattan, and a number of the army veterinarians were present throughout the meeting and took part in discussions, papers presented, and other matters. Dr. D. B. Leininger, captain in the Veterinary Corps and in charge of the Mounted Service School at Fort Riley, was also present during the meeting.

A memorable social feature of the meeting was the banquet held the evening of the second day, at which W. M. Jardine, dean of agriculture, at the college, was the principal speaker.

Dr. C. B. McClellan, of Lawrence, was elected president for the ensuing year, and Dr. J. H. Burt, of the Veterinary Department of the Kansas State Agricultural College, was re-elected secretary. The next meeting will be held at Lawrence, Kansas, during the early part of January, 1919.

Dr. Bernardo Dresto, chief veterinarian for the Cuban Government, in a recent visit to Kentucky, purchased a dozen or more high-bred animals for the Cuban Government Agricultural School. The purchase included three Hereford bulls at $500 each, six registered Hereford heifers at $300 each, two Holstein bulls $350 each, and three registered Berkshire gilts at $50 each.

MISSISSIPPI ASSOCIATION MEETS AT MERIDIAN

The 12th annual meeting of the Mississippi Medical Veterinary Association was held in Meridian, Mississippi, January 8 and 9, 1918. The association was welcomed to the city by the mayor, Hon. J. M. Dabney. Dr. James Lewis responded.

Dr. E. B. Jordon, of West Point, read a paper on "Blackleg." Dr. J. J. Jones, with the B. A. I. at Pasaguola, Miss., gave a very interesting and well-prepared paper on "Co-operation." Mr. E. A. Kimzey of Parke, Davis & Co., read a paper on "Influenza and Vaccines." Dr. Elmer Lash, with the B. A. I. at Jackson, spoke on "Tuberculosis Eradication." Hon. H. P. Gardner, commissioner of agriculture, spoke on "Co-operation of Those in Sanitary Control Work." Dr. H. Jensen, of Kansas City, gave a very instructive address on "Practical Therapeutics." Dr. J. P. Bushong read a paper on "Anthrax and Blackleg Vaccines."

Owing to the fact that some veterinarians in the state have been charging unreasonable fees for the inspection of live stock for interstate shipment, a committee was appointed to establish maximum charges for this service. The committee, composed of Drs. John Oliver, D. S. Taylor, James Lewis, J. A. Beavers and E. S. Norton, presented the following scale of prices which were adopted.

For office calls: for one mule or horse, $1.00; for one to five, per head, $1.00; for opthalmic mallein test, $3.00; for thermal mallein test, $5.00; for each additional mule or horse, $1.00; for tuberculin test of cow, $2.50; for each additional on up to ten head, $1.00; for hogs and dogs, 50 cts each; for horses and mules in car lots, 50 cts. each; for city and country calls, same as visit according to locality.

Resolutions read by Dr. E. S. Osborne and adopted by the association, commended the state livestock board and the B. A. I. inspectors for their efficient work in eradicating the Texas fever tick and for their splendid co-operation with the veterinarians throughout the state.

President Chadwick, in his address, also commended the work accomplished by the livestock sanitary board and the B. A. I., and stated that in 1918 they hoped to take up the work of hog cholera control.

Resolutions read by Dr. John Oliver and adopted by the association, relative to the country demonstration agents' vaccinating hogs and attempting to diagnose and treat other contagious and infectious diseases, are to be sent to the state veterinarian, the livestock sanitary board, the director of agricultural extension work, and the federal director of state demonstration work.

The following officers were elected:

Dr. W. R. Edwards, Vicksburg, president;
Dr. E. S. Norton, Greenville, vice president;

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and Dr. J. A. Beavers, Canton, secretary-treasurer.

The following committees were appointed:

Executive: Drs. W. P. Ferguson, John Oliver and E. M. Alderman.

Legislative: Drs. James Lewis, W. L. Gates and W. L. Hossley.

Diseases: Drs. O. M. Norton, D. S. Taylor and B. M. Leigh.

Program: Drs. E. S. Norton, H. Chadwick and E. B. Jordon.

The next meeting will be held the first Tuesday and Wednesday of February, 1918, at Greenville.

The association voted to present fifty dollars to the Red Cross society of Meridian.

Clinics were held on the second day of the meeting at Dr. B. M. Leigh's hospital.

ILLINOIS VETERINARIANS SUBSCRIBE GENEROUSLY TO A. V. R. F.

The thirty-fifth annual meeting of the Illinois State Veterinary Medical Association was held at the Hotel LaSalle, Chicago, December 5, 6 and 7, 1917.

During the first session a paper on "Blackleg and Its Prevention," was presented by Dr. G. A. Johnson, Sioux City, Iowa; a special committeee report on "Tentative Plan for Accredited Tuberculosis Free Herds" was given by Dr. J. A. Kiernan, Washington, D. C.; and "Cleaning and Disinfection of Stock Cars" was discussed by J. H. Mercer, Topeka, Kans.

In giving the report of the Legislative Committee, Dr. W. J. Martin called on Dr. H. A. Presler for a report of his experience in endeavoring to collect a professional fee for the services of an assistant. Dr. Martin then read the following letter from an attorney giving an opinion on the employment of student assistants by veterinarians:

Section 52 sub-section 8 of Chapter 91 of Hurd's Revised Statutes of Illinois reads as follows: "Any person shall be regarded as practicing veterinary medicine and surgery within the meaning of this act who professes publicly to be a veterinary surgeon or dentist, or who appends to his name any initials or title implying qualifications to practice; or who shall treat, operate on or prescribe for any physical ailments in, or any physical injury to, or deformity of, any domestic animal, for which he shall receive any compensation either directly or indirectly; but nothing in this act shall be construed to prohibit veterinary students from prescribing under the immediate supervision of preceptors; and castrating and spaying animals and dehorning cattle shall not be regarded as practicing veterinary surgery within the meaning of this act. The terms of this act shall not apply to commissioned veterinarians in the United States army nor to any lawfully qualified veterinarian residing in other states or countries meeting registered veterinarians in (this) state in consultation."

You have asked me for a written opinion as to the limitations of the following sentence in the above section, "but nothing in this act shall be construed to prohibit veterinary students from prescribing under the immediate supervision of preceptors." In my opinion that sentence means precisely what it says, namely, that veterinary students may prescribe under the *immediate* supervision of preceptors, but

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it does not permit said students to operate on any animal, and when prescribing for any animal this work must be immediately supervised by the preceptor. A preceptor could not lawfully send his student to treat an animal if the preceptor were not personally present. The act does not contemplate surgery by the student at all; it simply means medical treatment and then only if the preceptor is present."

The report was discussed by Drs. N. S. Mayo, D. M. Campbell, A. H. Baker, Chandler, J. T. Nattress and C. C. Mills.

Dr A. H. Baker, chairman of the Prosecuting Committee, reported that the committee had done nothing during the year and moved that the committee be abolished. The motion was seconded by Dr. C. G. Glendenning, discussed by Drs. D. M. Campbell, C. C. Mills, J. F. Gillespie, W. G. Techenbrock, W. J. Martin and C. A. White. Dr. Baker, with the consent of the second, then withdrew the motion.

Twenty-five applicants were elected to membership.

The election of officers resulted in the selection of Dr. H. A. Greer, of Danville, as president; Dr. R. E. Nesbitt, of Clinton, as vice-president, and Dr. C. G. Glendenning, of Clinton, as member of the board of censors.

It was moved by Dr. W. J. Martin, and seconded by Dr. C. G. Glendenning, that the treasurer be instructed to pay the $100 pledged by the president at the A. V. M. A. meeting in Kansas City, for the army veterinary relief fund.

Dr. D. M. Campbell, acting secretary, read a letter he had received from Dr. John H. Blattenburg, of Lima, Ohio, chairman of the A. V. M. A. committee on army veterinary relief fund, in which he asked that the association set aside one-half hour in which to receive subscriptions to this fund. It was moved by Dr. W. J. Martin and seconded by Dr. N. S. Mayo, that a committee be appointed. The president appointed Drs. D. M. Campbell and W. J. Martin to receive subscriptions for the army veterinary relief fund from members of the association. Dr. Campbell announced that the books would be open for subscriptions on the following day.

It was moved by Dr. W. J. Martin and seconded by Dr. N. S. Mayo, that members of the association joining the colors, be exempt from the payment of dues during their service in the army and that their names be placed upon a separate page in our roll to be known as the roll of honor. Motion carried.

It was moved, seconded and carried that the association extend a vote of thanks to Dr. D. M. Campbell for his efficient work in the preparation of the program and taking care of the arrangements for the meeting.

On December 6th the following papers were presented: "Eradication of Tuberculosis in Cattle and Swine," by Dr. J. A. Kiernan. Discussion by Drs. D. E. Dyson, D. M. Campbell and A. T. Peters.

"The Veterinarian and the Law" by Dr. Henry Bixby Hemenway. Discussion by Drs. H. R. Schwarze, D. M. Campbell and N. S. Mayo.

"Some Recent Antiseptics and Disinfectants," by Dr. N. S. Mayo. Discussion by Drs. Mark White, C. A. White and others.

"Specimens for Laboratory Examination," by Dr. M. D. Moledezky, of Chicago. Discussion by Drs. H. R. Schwarze, T. P. Haslam, N. S. Mayo, and C. C. McLane.

"Mixed Infection in Hogs" by Dr. J. D. Reardon, of Peoria. Discussion by Drs. G. A. Johnson, A. T. Peters, E. K. Glover, W. F. Brownlee and L. B. Huff.

At this point Dr. D. M. Campbell, chairman of the Committee on Army Veterinary Relief Fund, asked that the association take a recess of thirty minutes in which to receive subscriptions. Subscriptions to the amount of more than $500 were received.

Two papers on "Hemorrhagic Septicemia" were then presented, one by Dr. C. G. Glendenning and the other by Dr. H. A. Presler, of Fairbury. These papers were discussed at length by Drs. N. S. Mayo, A. T. Peters, J. G. Nattress and others.

A paper on "Field Experiments in Forage Poisoning" was presented by H. P. Rusk, University of Illinois. Discussion by Drs. R. G. Graham, A. T. Peters, N. S. Mayo, C. C. Mills, D. M. Campbell, W. J. Martin, B. C. Rogers and H. C. Merker.

It having been brought to the attention of the president that the Hon. Chas. Atkins, Commissioner of Agriculture, was in the room, he was called upon for remarks and addressed the association in a very appropriate way, asking for the Board of Agriculture, the co-operation of veterinarians of the state.

"The Relation of Retained Fetal Membranes and Sterility in the Cow," by Dr. Silas Kempf, of Roanoke, was next presented. Discussion by Drs. N. S. Mayo and W. H. Welch.

A paper by Dr. H. A. Greer on "Common Diseases of Swine" was next called for, but Dr. Greer asked that owing to the lateness of the hour, his paper be read by title only and presented to the secretary. The request was granted.

Dr. Burton C. Rogers, of Chicago, was then given an opportunity to address the association on the subject of "Tuberculosis in Animals and Man."

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Dr. Mark White, of Chicago, was given the privilege of presenting a paper on "Goiter."

Dr. H. C. Merker, of the General Laboratories, Madison, Wis., was afforded the privilege of discussing the subject of hypochlorides.

The entertainment of the visiting ladies was in charge of Mrs. A. H. Baker. A matinee party was given on the first afternoon of the meeting. A trip to the Wilson Packing Company's plant and luncheon there; later a visit to the plant of the Ward Baking Company, and the Horse Show in the evening occupied the second day of the meeting. On the third day, a tour of Marshall Field's retail store and a matinee completed the entertainment.

BRENNER CONTINUES HIS MOTOR TRIP IN THE INTEREST OF VETERINARY MEDICINE

Writing from Fort Worth, Texas, Mr. Brenner sends the following account of his trip from El Paso to that point:

"My drive from El Paso, Texas, to San Antonio was about the meanest I have thus far had. The distance is some seven hundred miles. Because of the unusual drought in this section, the country is extremely dusty and dirty. The roads are far from good and the respectable stopping places are few and far between. By the way this stretch is the longest in the United States that does not claim a practicing veterinarian. Not one is located between El Paso and San Antonio, a distance approximately equal to the distance from Detroit to New York City, from St. Louis to New Orleans, from Chicago to Fargo, Salt Lake City to San Francisco.

"At Camp Cody, Deming, New Mexico, and at the camp at El Paso, I saw all the army veterinarians. Each camp has in the neighborhood of twenty veterinarians. As at the other camps I have visited, I saw many that I had previously met, either in college or in 'their own home towns' and we invariably spent considerable time in recalling incidents that took place back in 'the days of real sport.' At Camp Cody I met my old friend, Robert Van Skike. I called on him at Mexico, Missouri, on my way to the west coast.

"I spent Christmas eve at Sierra Blanca, Texas, a little 'God Forsaken' junction point some one hundred miles from El Paso. I was in Marfa Christmas night. I came near to running in to a serious situation at Ft. Stockton. As is my regular custom I ordered my tank filled with gasoline at the garage there. 'Gasoline!' exclaimed the garage owner. 'Why we haven't had any gasoline in this

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Calf Scour Vaccine, for the prevention and treatment of white scour or Pneumonia in calves due to B. coli, B. paracoli and B. enteritidis.
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P. M. Cook, D. V. M.
W. G. Cook, D. V. M.
B. M. Goodman, D. V. M.

town for three weeks.' And on further inquiry I learned that there was no prospect of getting any gasoline in Ft. Stockton for at least two weeks more. There were autos galore laid up in the garage because of the lack of gasoline. The oil agent said that he simply couldn't get any gas. The gas station nearest to Ft. Stockton was 125 miles away. By a rare good chance I had eight gallons in my tank and I made the next filling station without difficulty. I paid 35 cents a gallon for gas along this stretch.

"The auto road crosses and recrosses a river thirty-four times in one hundred miles. In most of the cross washes the water comes up to the running board of the car. It is crystal-like 'pura aqua' that flows in this stream and one is able to see his way easily to make it in the car.

"There are two veterinarians practicing in El Paso. Proper Brothers maintain an attractive hospital there that lives up to the name of the proprietors. There are two men practicing in San Antonio. In addition to his regular run of work Dr. Rhea, of San Antonio, treated some twelve hundred dogs last year.

"I attended a New Year's party given by the Remount Depot veterinarians at Camp Travis and had a most enjoyable time there. There are about fifty veterinarians at this camp in charge of Major Fred Foster, M. R. C. V. S.

"From San Antonio I visited the camp at Waco and then Camp Bowie at Ft. Worth. In between I stopped at San Marcos, Austin, Taylor, Temple and Hillsboro. I also stopped at Waxahatchie and saw my old friend Dr. Frank Barnes. I played him a game of pool for the championship of the town. Who won? Well, modesty prevents me from telling.

"There are some twenty veterinarians stationed at Camp Bowie. Capt. Beckham, of Tuscaloosa, Alabama, is in charge. Capt. Vernon Castle, the celebrated New York dancer, is stationed at Ft. Worth in the aviation instruction school.

"In Ft. Worth I met a number of old friends, among them Drs. Cloud, Crabb, Peck, Nick Williams and Stewart. Also Dr. Jarrell, the state veterinarian, and Dr. J. N. Huff, formerly of Sioux City, Iowa. Here, too, I experinced my first cold weather in a whole year. In the 25,000 miles that I have traveled on this trip, because of the unusually pleasant weather I had enjoyed, I never had to put the curtains on my car.

"By the way, Texas veterinarians are doing well."

Mr. Brenner stored his car in Ft. Worth temporarily. He went to Ames, Iowa, by

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rail to be present at the state association meeting there and after a round of the schools in the Middle States, will return to his auto and resume his trip "on toward Philadelphia, visiting all of the southern encampments en route."

N. Y. STATE VETER'Y COLLEGE, NEW YORK UNIVERSITY

First Practitioners' Course, Carnegie Hall, Jan. 24, 25, 26, 1918

Thursday, January 24, 1918

10 A. M.—Announcements, Dean Hoskins.
10:30 A. M.—Review of the Lymphatic System and its functions, Henry Henning.
11:30 A. M.—The Teeth—Determination of Age—Their Influence on Digestion and Nutrition, J. G. Dolan, D. V. S.
12:30 to 2 P. M.—Recess for lucheon.
2 P. M.—Milk Survey Problems, Russell Raynor, Ph. B.
3 P. M.—Transportation Problems of Army Horses, Robert McAuslin, D. V. S.
4 P. M.—Economic Importance of Parasitic Diseases, Charles S. Chase, D. V. S.
5 P. M.—X-Ray Progress in Comparative Medicine, Louis Griessman, Lieut N. A. V. Corps.

Friday, January 25, 1918

10 A. M.—Some Daily Observations in Equine Practice, Robt. W. Ellis.
11 A. M.—Newer Biological Products, Alexander McNeil, M. D.
12 M.—Better Methods of Horse Shoeing, James McDonough, D. V. S.
1 to 2 P. M.—Recess for luncheon.
2 P. M.—Tuberculosis in Our Daily Herds, J. F. DeVine, D. V. S.
3 P. M.—Eradication of Tuberculosis Accredited Herds, J. A. Kiernan, D. V. S.
4 P. M.—Control of Glanders and Rabies, A. Silkman, D. V. S.
5 P. M.—Value of Standardization of Drugs, T. B. Rogers, D. V. S.

Saturday, January 26, 1918

9 A. M.—New Remedies in Veterinary Medicine, T. B. Rogers, D. V. S.
10 A. M.—Sanitary Control Work, Wm. H. Park, M. D.
11 A. M.—Actinomycosis, Wilfred Lellman.
12 M.—Special Aspects, Complications of Every-Day Disease[illegible]quines, Chas. Schloemer, V. M. D.
2 P. M.—Organization of the Army Veterinary Corps, W. Horace Hoskins. D. V. S.
3 P. M.—Control Work in Infectious and Contagious Diseases, Adolph Eichorn.
4 P. M.—Visit to the American Society Prevention of Cruelty to Animals Hospital, 24th Street and Avenue A.

SHORT COURSE IN STERILITY AND CONTAGIOUS ABORTION

The Extension Service, Missouri College of Agriculture, announces the program for a graduate course in Sterility, Udder Surgery and Contagious Abortion, to be held at the University of Missouri, January 22 to 25, inclusive, 1918:

Sterility

Dr. E. T. Hallman, Veterinary Department, Michigan Agricultural College, East Lansing, Mich.

Contagious Abortion

Dr. Wm. E. Cotton, B. A. I., United States Department of Agriculture, Washington, D. C.

Udder Surgery

Dr. Thos. H. Ferguson, Secretary, State Examining Board of Wisconsin, Lake Geneva, Wis.

Anatomy

Dr. L. S. Backus, Assistant Professor of Veterinary Science, University of Missouri, Columbia, Mo.

Field Demonstrations

Dr. F. W. Caldwell, Extension Assistant Professor, Veterinary Science, University of Missouri, Columbia, Mo.

Laboratory Diagnosis

Mr. A. J. Durant, Instructor, University of Missouri, Specialist in Contagious Abortion Investigation, Experimental Station, College of Agriculture, University of Missouri.

More and Better Beef Cattle

Prof. E. A. Trowbridge, Professor of Animal Husbandry, College of Agriculture, University of Missouri, Columbia, Mo.

Assisting the Farmer to Improve His Herd

Prof. C. H. Eckles, Professor of Dairy Husbandry, College of Agriculture, University of Missouri.

MILITARY AND NAVAL INSURANCE

For his own benefit and for the benefit of his family, every enlisted man and officer in the Army and Navy should take the full $10,000 of insurance. Insurance of almost $4,000,000,000 has already been applied for, but this great total is only a beginning. America's Army and Navy should be 100 per cent insured.

The necessity of prompt application cannot be emphasized too strongly. Persons in service before October 15, 1917, must apply on or before February 12, 1918. Those who joined after October 15, 1917, have 120 days from the date of enlistment in which to apply.

MORE MEAT-PRODUCING ANIMALS NEEDED

According to Dr. I. D. Wilson, veterinarian of the Pennsylvania State College, conservative estimates taken in England and France show a decrease of 8,000,000 head of cattle, 7,000,000 hogs, and 17,500,000 sheep in these countries alone since the war began. This loss the American farmer must attempt to cover as well as the possibility of animal bankruptcy after the war is over. The annual loss in the United States due to animal diseases is estimated at $212,000,000, approximately enough to furnish the meat ration for 2,000,000 soldiers for a month. Most of this loss results from diseases controllable in great measure by proper management. During the past 15 years the population of the United States has increased by 15,000,000; during the same time there has been a decrease of 6,000,000 head of cattle and 11,000,000 sheep, while the number of hogs has increased 11,000,000.

Dr. Eldon Smith, veterinarian of Grand Rapids, Mich., appointed Dr. E. W. Wells as assistant city veterinarian.

Mr. O. G. E. Miller, a farmer of Aurora county, S. D., threatens to bring suit against Dr. Faber, of Mitchell, deputy state veterinarian. It is claimed that Dr. Faber on inspecting Mr. Miller's cattle last spring declared the cattle were afflicted with Texas itch. Mr. Miller was unable to have the quarantine lifted until an appeal to the governor brought the state veterinarian, Dr. Phelps, to the scene. Dr. Phelps said the herd showed no signs of infection, and evidently had not for some weeks. Miller believes the cattle had lice instead of itch, and claims Faber did not make a careful inspection.

Both the North and South are relieved by the release from Federal quarantine of 65,520 square miles which had been under quarantine against the cattle fever tick since the campaign against the tick was started in 1906. The largest released area is in Mississippi, which will be entirely freed, opening up a broad avenue of tick-free territory from the northern states to the Gulf of Mexico.

Dr. C. E. Ackerman, St. Joseph, Mo., has resigned his position with the Government as veterinary inspector and expects soon to resume veterinary practice at Stewartsville, Mo.

Farmers in DeKalb county, Illinois, are much concerned over the outbreak of anthrax among their cattle. Several farms have been placed under quarantine.

Influenza, Distemper, Strangles, Laryngitis, Pharyngitis, Bronchitis, Pneumonia, Coughs, Oedema Glottidis, Infectious Diarrhea, Gastric or Intestinal Flatulence, Canine Distemper

These are conditions that the Practitioner is "up against" almost daily. There are countless "remedies" for one or more of these ailments, but if you wish to get results at the lowest possible cost

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GUAIALYPTOL'S success is explained in a few words, namely: its excellent Composition, extensive Physiological Action, wide Serviceability, quick Results, and Economy. A single gallon will make 128 pints of usual strength, the dose being 1 to 2 ounces of the dilution. PRICE: Pint, $1.25; 5 pints, $4.50; gallon, $6.

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But it is not necessary that a veterinarian receive no fees for the treatment of the ills of poultry. Hundreds of practitioners have demonstrated that there is a demand for the services of the veterinarian who has the ability to be of practical service to the owner of ailing flocks and the remuneration for such services constitutes no inconsiderable portion of the income in the average country practice.

As a treatise on poultry diseases there is just one work to be considered, and it is

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The new edition of this work is so superior to the old in every way that we have no hesitancy in recommending its purchase, even to those who possess the earlier edition, with every confidence that they will be more than satisfied with it.

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NEBRASKA LICENSE No. 18

By a recent ruling at Washington, all students enrolled at veterinary college are required to enlist in the United States Army Medical Reserve Corps. This has the effect of exempting veterinary students from the draft, putting them in a deferred classification to permit them to finish their veterinary training. This action was taken in view of the increasing need of veterinarians in the cavalry service and for various branches of hygienic work in the army. Prompt enlistment of students is necessary to insure the continuance of their temporary exemption from the draft.

The Continental Serum Laboratories, Muscatine, Iowa, has plans now under way for the expenditure of $15,000 for the rebuilding of their plant and additions to the biological laboratory. The firm is adding a new product to their list, a black-leg serum. This serum, the president, Dr. Houk, claims is more effective than the treatment formerly used and he says can be administered at a lower cost.

Dr. M. W. Scott, for thirty years a veterinarian in Knox County, Ind., has received an appointment with the bureau of animal industry, and will be stationed at East St. Louis.

The State Veterinary Medical Association of Texas will introduce a bill before the next legislature asking that the present veterinary law be amended. A new law to meet all the requirements of the A. V. M. A is proposed. Indications favor the passing of the enactment, which if put into effect will greatly improve conditions with the veterinarian.

Dr. Lester Howard, for a number of years commissioner of animal industry of Massachusetts, was reappointed to service by the governor. Hundreds of testimonials to the governor from all parts of the state by persons in all walks of life, atttsted Dr. Howard's ability and fitness for the position.

Dr. Joseph Hughes, president of the Chicago Veterinary College and one of the best known veterinarians in America, is seriously ill in Chicago.

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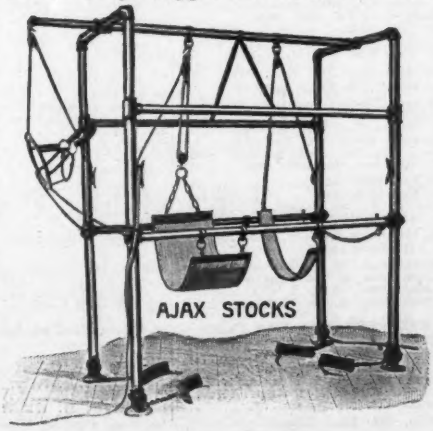

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ASSOCIATION MEETINGS

The information given below is up-to-date and has been furnished by the secretaries of the various associations listed. Secretaries are requested to supply us data regarding their associations after each meeting; otherwise, the association will necessarily be dropped from the list. We ask secretaries to kindly co-operate with us in keeping before the members of their associations the date and place of the next meeting.

Name of Association	Date of Meeting	Place of Meeting	Secretary
Alabama Vet. Med. Assn.			C. A. Cary, Auburn, Ala.
Alumni Assn., Col. of Vet. Med., O. S. U.		Columbus, O.	W. R. Hobbs, O. S. U., Columbus, O.
Alumni Assn., N. Y. State Vet. College		New York	P. K. Nichols, Port Richmond, N. Y.
Alumni Assn., U. S. Col. Vet. Surg.	April, 1918	Washington, D. C.	Chas. M. Mansfield, 1344 Newton St., Washington, D. C.
American Vet. Med. Assn.	Aug. 20-24, 1918	Philadelphia	L. A. Merillat, 1827 Wabash, Chicago.
Arkansas Vet. Med. Assn.		Little Rock, Ark.	R. M. Gow, Little Rock.
British Columbia Vet. Assn.		Penticton, B. C.	Kenneth Chester, New Westminster, B. C.
B. A. I. Vet. Assn. of So. Omaha	4 times a year	So. Omaha, Neb.	J. W. Giffee, care B. A. I., So. Omaha.
California State Vet. Med. Assn.			F. M. Hayes, Davis, Cal.
Central Canada Vet. Assn.		Ottawa, Ont.	A. B. Wickware, Exp. Farm, Ottawa.
Central N. Y. Vet. Med. Assn.	June and Nov.	Syracuse, N. Y.	W. B. Switzer, Oswego, N. Y.
Chicago Vet. Society	2nd Tues. of month	Chicago, Ill.	J. B. Jaffray, 1524 S. Albany, Chicago.
Colorado Vet. Med. Assn.		Denver, Colo.	C. E. Newsom, Ft. Collins, Colo.
Conestoga Veterinary Club	2nd Thurs. of month	Lancaster, Pa.	H. W. Barnard, 539 E. King St., Lancaster, Pa.
Connecticut Vet. Med. Assn.	Feb. 5, 1918	Hartford, Conn.	A. T. Gilyard, Waterbury, Conn.
Eastern Iowa Vet. Med. Assn.		Cedar Rapids, Ia.	S. B. Houk, Muscatine, Ia.
Genesee County Vet. Med. Assn.			W. J. Houden, Flint, Mich.
Genesee Valley Vet. Med. Assn.	July	Rochester, N. Y.	I. H. Taylor, Henrietta, N. Y.
Georgia State Vet. Assn.			Peter F. Bahnsen,, Capitol Bldg., Atlanta.
Hudson Co. Vet. Practitioners' Club	Monthly	Jersey City, N. J.	B. D. Blair, 782 Montgomery St., Jersey City, N. J.
Hudson Valley Vet. Med. Society	Feb. 6, 1918	Albany, N. Y.	Wm. Henry Kelly, Albany, N. Y.
Idaho Assn. of Vet. Graduates		Boise, Idaho	C. V. Williams, Blackfoot, Idaho.
Idaho Vet. Med. Assn.	Sept. 26, 27, 1918	Council, Idaho	O. C. Engebretson, Burley, Idaho.
Illinois State Vet. Med. Assn.	July 1918	Peoria, Ill.	L. A. Merillat, 1827 Wabash Ave., Chicago
Illmo Vet. Med. Assn.			L. R. McKinley, Freeburg, Ill.
Indiana Vet. Med. Assn.		Indianapolis, Ind.	Geo. H. Roberts, Indianapolis, Ind.
Iowa Vet. Med. Assn.		Ames, Iowa	H. B. Treman, Rockwell City, Ia.
Kansas Vet. Med. Assn.		Lawrence, Kan.	J. H. Burt, Manhattan, Kan.
Kentucky Vet. Med. Assn.			D. E. Westmoreland, Owensboro, Ky.
Keystone Vet. Med. Assn.	2nd Tuesday of month	Philadelphia	L. B. Davis, 857 E. Girard, Philadelphia.
Lake Erie Vet. Med. Assn.		Norwalk, O.	N. D. Backus, Elyria, O.
Los Angeles Vet. Med. Assn.	3rd Wed. of month	Los Angeles	J. A. Dell, 16th and Pacific, Los Angeles.
Maine Vet. Med. Assn.		Bangor, Me.	M. E. Maddocks, Augusta, Me.
Manitoba Vet. Assn.		Winnipeg, Man.	W. Hilton, 275 James St., Winnipeg.
Massachusetts Vet. Med. Assn.	Monthly	Quincy House, Boston	E. A. Cahill, Boston, Mass.
Michigan State Vet. Med. Assn.	1st Tues. and Wed. after 1st Mon. in February	Lansing, Mich.	W. Austin Ewalt, Mt. Clemens, Mich.
Minnesota State V. M. Assn.	Jan. 9, 10, 11, 1918	Minneapolis, Minn.	G. Ed. Leech, Winona, Minn.
Mississippi State Vet. Med. Assn.	Feb., 1918	Greenville, Miss.	E. S. Norton, Greenville, Miss.
Mississippi Valley Vet. Med. Assn.		Galesburg, Ill.	W. Lester Hollister, Avon, Ill.
Missouri Valley Vet. Assn.	Feb. 19, 20, 21, 1918	Kansas City	R. F. Bourne, Ft. Collins, Colo.
Missouri Vet. Med. Assn.	Last week in July	Neosho, Mo.	C. D. Foise, 1336 E. 55th St., Kansas City.
Montana Vet. Med. Assn.	Jan. 25, 26, 1918	Great Falls, Mont.	A. D. Knowles, Missoula, Mont.
Montgomery Co. Vet. Med. Assn.	Last Fri. each month	Crawfordsville, Ind.	A. B. Niven, Crawfordsville, Ind.
Nat'l Assn. B. A. I. Employees		Omaha, Neb.	S. J. Walkley, 125 N. W. Ave., Milwaukee
Nebraska Vet. Med. Assn.	2nd Tues. & Wed. in Dec.	Lincoln, Neb.	S. W. Alford, Lincoln, Neb.
New York State Vet. Med. Society			
North Carolina Vet. Med. Assn.		Charlotte, N. C.	J. P. Spoon, Burlington, N. C.
North Dakota Vet. Assn.	July, 1918	Agricultural College	C. H. Hofstrand, Brinsmade, N. D.
Northeastern Indiana Vet. Assn.		Ft. Wayne, Ind.	R. M. Boyd, Avilla, Ind.
Northwestern Ohio Vet. Med. Assn.	Feb. 21	Toledo, O.	Paul E. Wood, Ottawa, Ohio.
Ohio State Vet. Med. Assn.		O. S. U. Columbus, O.	F. A. Lambert, care O. S. U., Columbus.
Ohio Valley Vet. Med. Assn.	July	Oakland City, Ind.	C. S. Henry, Terre Haute, Ind.
Oklahoma State Vet. Med. Assn.		Oklahoma City	R. C. Smith, Enid, Okla.
Ontario Vet. Assn.		Toronto, Canada	H. R. Hurd, 337 Queen St., W., Toronto, Ont.
Oregon Vet. Med. Society	June, 1918	Portland	B. T. Simms, Corvallis, Ore.
Pennsylvania State Vet. Med. Assn.		Harrisburg, Pa.	E. H. Yunker, 2344 N. 18th, Philadelphia
Rhode Island Vet. Med. Assn.			U. S. Richards, Woonsocket, R. I.
San Joaquin Valley Vet. Med. Assn.	2nd Wed. of month	Fresno, Cal.	Jos. M. Arburua, Hanford, Cal.
Schuylkill Valley Vet. Med. Assn.	3rd Wed., June and Dec.	Reading, Pa.	C. R. Potteiger, Reading, Pa.
South Dakota Vet. Med. Assn.		Sioux Falls, S. D.	S. W. Allen, Watertown, S. D.
Southeastern States Vet. Med. Assn.	Feb. 20, 21, 22, 1919	Birmingham, Ala.	G. A. Roberts, West Raleigh, N. C.
Southern Aux. Cal. State Vet. Med. Assn.			J. A. Dell, 16th & Pacific, Los Angeles.
S. W. Michigan Vet. Med. Assn.			L. A. Minter, Niles, Mich.
Tenn. Vet. Med. Assn.		Chattanooga	F. R. Youree, Lebanon, Tenn.
Texas Vet. Med. Assn.		Ft. Worth, Tex.	E. M. Wiggs, Greenville, Texas.
Tri-County Vet. Med. Assn.		Liberty, Ind.	Geo. G. Ferling, Richmond, Ind.
Twin City Vet. Med. Society	Once a month	St. Paul	C. C. Palmer, St. Paul, Minn.
U. S. Live Stock Sanitary Assn.	Dec. 2, 3, 4, 1918	Chicago	H. S. Ward, St. Paul, Minn.
Utah Vet. Med. Assn.		Logan, Utah	E. P. Coburn, Brighton City, Utah.
Veterinary Assn. of Saskkatchewan	Aug. 15, 16, 17, 1918	Regina, Sask.	R. G. Chasmar, Hanley, Sask.
Vet. Med. Assn. of New Jersey		Asbury Park, N. J.	E. L. Loblein, New Brunswick, N. J.
Vet. Med. Assn. of N. Y. City		New York City	R. S. MacKellar, 351 W. 11th St., N. Y.
Vet. Med. Assn. of Geo Washington Univ.	1st Sat. each month	Washington, D. C.	L. L. Criswell, 2115 14th St., N. W., Washington, D. C.
Vet. Med. Society Wash. State College	1st and 2nd Tues, ea. mo.	Pullman, Wash.	Claude Holden.
Virginia State Vet. Med. Assn.		Norfolk, Va.	W. G. Chrisman, Blacksburg, Va.
Washington State Vet. Med. Assn.	June, 1918	Portland, Ore.	Carl Confer, Bellingham, Wash.
West Virginia Vet. Med. Assn.		Parkersburg, W. Va.	E. Layne, Huntington, W. Va.
Western Michigan Vet. Med. Assn.		Allegan, Mich.	C. S. McGuire, Grand Rapids, Mich.
Western N. Y. Vet. Med. Assn.		Buffalo, N. Y.	F. F. Fehr, 36 Prospect Ave., Buffalo.
Wisconsin Vet. Med. Assn.	Jan. 15, 16, 17, 1918	Madison, Wis.	W. A. Wolcott, Madison, Wis.
York Co. Vet. Med. Society	1st Tues. after 1st Mon. of each month	York, Pa.	E. S. Hausticker, 235 Newberry, York, Pa.

PATIENT SHOWS CLAWS AND TEETH

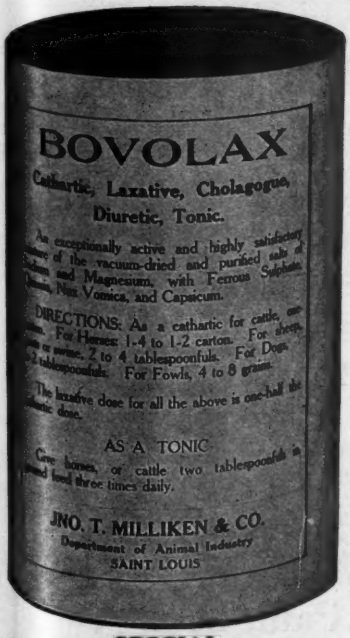
Dr. A. W. French, state veterinarian, Cheyenne, Wyo., recently had an exciting experience when he was called upon to operate upon a leopard, which was suffering from a gun wound in the shoulder accidentally inflicted during a performance. The wound had become infected, causing the leopard much distress. Cords were looped around the animal's feet and drawn taut so that he could not move his limbs and his mistress held his head back with a cord while the doctor operated. More than a pint of pus was drained from the wound, which was sterilized and drainage provided. The leopard objected sternuously to the treatment, and Dr. French says he did not enjoy the operation any more than the leopard. The doctor has performed a number of operations on dangerous animals, including the removal of the tusks and blunting the paws of a grizzly bear. On another occasion, he treated a pack of Alaskan wolves for mange, the only restraint on the animals being the voice of their trainer.

Dr. Veranus A. Moore, director of the New York State Veterinary College at Cornell University, will address the Chicago Medical Society, Wednesday evening, February 6th, Chicago, at the society headquarters in the Field Annex Building.

Dr. A. O. Rundell has been transferred from Fort Worth, Texas, to the South St. Joseph, Mo., office of the bureau of animal industry. He will take the place of inspector, formerly held by Dr. M. O. Anderson, who has been transferred to St. Paul, Minn. Dr. Rundell has been associated with the bureau for twelve years and has been in charge of stations at Fort Worth and Oklahoma City.

Dr. D. M. Waldo, formerly of Grand Ledge, Mich., has removed to Disville Notch, N. H., where he is veterinarian on the Balsams stock farm, operated by the Disville Notch Corporation.

Examination by the California State Board of Agriculture of specimens sent from Bakersfield of the cattle and horses thought to have died of anthrax, revealed that the animals had been poisoned by cyanide. All the animals had been drinking from the same slough.



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CONNECTICUT VETERINARY MEETING

The summer meeting of the Connecticut Veterinary Medical Association was held at Lake Compounce, Bristol, Connecticut, August 8, 1917.

Twenty-four members and eight visitors were present. The beautiful surroundings and the delicious dinner served by the management of the resort tended to make everyone happy and congenial. The meeting was called to order at 3:00 P. M., in an open air theatre near the restaurant.

In answer to a communication from the Pennsylvania State Veterinary Medical Association, it was voted that the Connecticut V. M. A. endorses Philadelphia for the 1918 meeting of the A. V. M. A.

Following the business meeting, the president, G. W. Loveland, very ably acted as toastmaster; all of those upon whom Dr. Loveland called, responded with remarks, which the discussions showed to be very interesting to those present.

The first speaker, Mr. H. O. Averil, ex-commissioner on domestic animals, for the state of Connecticut, dwelt at some length upon his pleasant past associations with the members of the C. V. M. A. and laid stress upon the importance of coöperation between the office of the Commissioner on Domestic Animals and the practicing veterinarians of the state. He spoke very highly of the present commissioner, Mr. James M. Whittlesey, and said that he hoped the members would be as courteous to Mr. Whittlesey as they had been to him.

Mr. Whittlesey was the next speaker. He said that he was pleased to meet so many of the representative veterinarians of the state and that he hoped for their coöperation, advice and assistance. He said that in the work of eradication, which is the principle work of his office, he planned to employ the local practitioners as much as possible and to divide the work evenly among the reputable men, and asked the members to bear in mind that the state is entitled to everyone's best service in these trying times. Relative to an act regarding the disposal of condemned animals, Mr. Whittlesey said that the animal should not be condemned until it has been appraised, and that the state will allow between ten and twenty-five dollars for a clinical case of glanders, but will pay more for a reactor. He said that it is desirable, whenever possible, in condemning cattle for tuberculosis to delay killing until this may be done in slaughter houses, under inspection, so as to conserve food and save money for the state; in other cases the animal may be sold to rendering companies and the amount thus received, paid to the owner and deducted from the amount to be paid by the comptroller.

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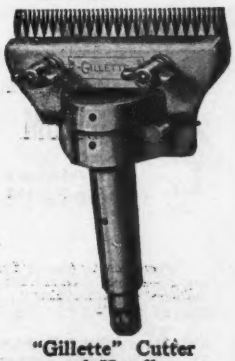

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The next speaker, Dr. C. L. Colton, Deputy Commissioner on Domestic Animals, said that there cannot be any hard and fast ruling as to the amount to be paid for a glandered horse, but that much more can be allowed for a reactor than for a clinical case. In relation to hog cholera work he said that the commissioner controls all serum and virus in the state, as well as the administration of the same, saying that there is a certain method of applying the serum and virus, which it is well for us to adhere to. Dr. Colton said that there are, at present, five or six practitioners in the state who have become expert in hog cholera work. He said, "If your clients have hogs that they wish to have treated, the state will furnish papers to be filled out and the state will send an expert to demonstrate the work and you may do as much or as little as you like."

Dr. G. A. Knapp, of Millbrook, New York, spoke very interestingly of some practical experiences in unusual cases of glanders and tuberculosis.

Dr. Ben. D. Pierce, of Springfield, Mass., spoke of the hog cholera work in Massachusetts, saying that all of the work is done by experts in the employ of the state and that the results are most gratifying. He said it is his opinion that the work can be done much better in this way than by entrusting it to busy practitioners as it requires a great deal of time and thought and interferes with practice.

Dr. Balcomb, of Massachusetts, in speaking of chronic distemper in dogs, said that he had obtained wonderful results from auto-inoculation. He takes the clean pus from the eye, mixes it with sterile water and injects it hypodermically.

The next meeting of the association will be held in Hartford on the first Tuesday in February, 1918.

Waterbury, Conn. O. T. GILYARD.

Dr. K. U. Jones, of Washington, D. C., reported at Hattiesburg, Miss., recently, having been assigned to that city as federal meat inspector. He will inspect all meat markets in the city and all cattle brought from the country for slaughter. He will also have charge of dairy inspection. Hattiesburg is reported to be the only city in Mississippi having the services of a federal meat inspector.

I have read the book "Lameness of the Horse," and it has far exceeded my anticipations. No up-to-date practitioner, young or old, can well afford to be without it.

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On account of the recent dynamiting of dipping vats in Virginia a bill is about to be enacted by the legislature making such an act a felony.

In a recent letter, Dr. A. W. French, state veterinarian of Wyoming, stated that the recent outbreak of rabies, the first to occur in Wyoming, was confined to the very narrow strip of country lying to the west of the Teton range, in the extreme western part of the state. The disease is now under good control and Dr. French feels assured that it will be eradicated from the state in a very short time. A very rigid quarantine is in force and no new cases have been reported for two weeks.

The government has taken over the Texas output of the Guarantee Swine Veterinary Co. The medicinal blocks made by the company will be used for the cavlary and other army horses. The blocks, recently patented by the company, contain herbs, minerals and drugs, preventives of disease, and are used for stock in place of ordinary salt. The company plans to erect a factory at Sioux City, Iowa, in the spring, for the manufacture of stock medicines and feed. Land has been leased from the Illinois Central for a period of twenty years, and a solid block of trackage has been installed.

Dr. C. M. McFarland, for many years in the employ of the B. A. I., and of late Inspector in Charge of the Serum Inspection Service with headquarters at Sioux City, Iowa, resigned his position with the bureau recently to become associated with the Purity Biological Laboratories of Sioux City. Dr. McFarland assumes the duties of assistant manager of the Purity Company this month.

Stockmen throughout Texas are complaining of a disease resembling mange, among their stock. Intense itching is the chief symptom. The disease seems to be spreading.

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American Journal of Veterinary Medicine

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TWIN HORSE AND MULE COLTS

A most unusual occurrence in animal lore is occasioning much comment among breeders of live stock throughout Marion county, Ky. A mare belonging to Mr. T. S. Simms, of Moretto, Ky., gave birth to twin colts, one a horse, the other a mule. The dam having failed two years in succession was bred to a stallion and also to a jack. Professor Anderson, chief of the Department of Animal Industry, Kentucky State University, took photographs and data of the case for the records. He stated that while he had during his years of work in animal breeding heard of such cases, the present instance is the only one that a careful investigation has proven authentic.

Bardstown, Ky. J. H. Settle.

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The wound is scrubbed in this way from the center to the periphery, the soap finally being washed away with water, after which the indicated antiseptic is applied, as, for

For some time Dr. Alexis Carrel has been using, in the War Demonstration Hospital of the Rockefeller Institute, for the cleansing of wounds, a liquid sodium soap—a neutral sodium oleate. This has been employed with most satisfactory results.

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Neutral Sodium Soap, prepared to meet Doctor Carrel's indications, has been placed on the market by The Abbott Laboratories, Chicago, and is now offered to the medical and veterinary professions.

This firm is also prepared to supply Chlorcosane, the new simple solvent for Dichloramine-T, recently introduced by Drs. Dakin and Dunham. This is free from taste or odor, and is nonirritant, making a solution which is more stable than has heretofore been obtainable, and requiring no admixture or dilution with other substances.

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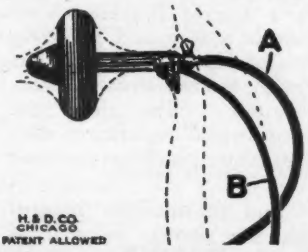

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Dr. B. C. McClintock, graduate of the Chicago Veterinary College, has removed from California to Yuma, Ariz.

The annual report of the Utah State Live Stock Commission shows that in testing 14,319 cattle only .06 per cent were found to be tuberculous. This report Dr. Hoggan believes will compare favorably with that from any other state in the Union. The commission forwarded 555 skins from predatory animals which had been killed or trapped during the year, to St. Louis to be sold, the proceeds to be applied to the general state fund.

Dr. A. B. Crawford, government inspector at the Shelton Serum Company's plant, Shelton, Nebr., the past two years, left for Omaha where he has accepted a similar position at the Corn Belt Serum Plant. Dr. Martin Hull, of Red Cloud, who spent the past year in California in government work, will have charge of the government inspection at Shelton plant.

Dr. C. E. Ackerman, of Stewartsville, Mo., ras reported for duty at the South St. Joseph bureau of animal industry as veterinary inspector .

Dr. J. B. Luke, from Imperial Valley, recently moved to Blythe, Calif., where he will continue to practice veterinary medicine.

A good veterinarian who attends strictly to business and charges a reasonable price for his services would build up a big practice in Leeton, Mo., according to the local paper.

Slaughter of all farm animals kept at a loss, injured animals or those having some localized diseases, but whose flesh is still fit for human food, provided there is no chance of recovery, is advised by Dr. W. W. Dimock, of the veterinary division of the Iowa State College. Likewise animals not fit for human food, suffering from diseases that are incurable or that endanger other animals should be killed. This "conservation slaughter" is being urged as a wartime measure. With the high cost of feed, no bit of grain should be fed which will not yield returns in meat or service. Thousands of animals are being kept at a serious loss, because of high feed, that would be more profitably slaughtered. Wherever slaughtered these animals should be thoroughly inspected by a competent veterinarian, according to the government regulations, before meat is used.

Lameness of the Horse

To have a limited degree of knowledge of any subject, in such form that it may be put to useful service, is preferable to the possession of much knowledge that cannot be given practical application.

Following an introductory article in Lacroix's "Lameness of the Horse" is a discourse on general causes of lameness. This section serves to give to the careful reader a foundation for the study of diagnostic principles.

Mastery of diagnostic principles will give the practitioner, who needs such training, a useful knowledge of the subject of lameness and, especially, a thorough understanding of the manner in which such knowledge may be most advantageously employed.

Sections three and four are so written that they may either be studied in their regular order of presentation or consulted as reference. Therein the practitioner will find separate and complete discussions of the many topics considered. Perplexing problems of a surgical nature that frequently present themselves to the veterinarian are given careful consideration. The book is well illustrated and is one of the most useful veterinary works obtainable. The price is $3.00, prepaid.

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31. Diseases of the Heart.
32. Azoturia.
33. Transient Crural Paralysis.
34. Lymphangitis.
35. Epizootic Lymphangitis.
36. Foot Scab.
37. Foot Rot in Colts.
38. Umbilical Hernia.
39. Paralysis of the Tail.
40. Agalactia in Mares.
41. Strangles.
42. Influenza.
43. Infectious Cerebro-Spinal Meningitis.
44. Erysipelas.
45. Septicemia.
46. Malignant Edema.
47. Purpura Hemorrhagica.
48. Acute Infectious Dysentery.
49. Tetanus.
50. Anthrax.
51. Rabies.
52. Tuberculosis.
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PART III—Poisonings.

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American Journal of Veterinary Medicine

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One result of the entrance of the United States into the war, which has received little notice so far, is the certainty that in future the horses in France will receive better treatment by their owners and drivers. The veterinarians attached to the United States Army are losing no opportunity to point out the value of intelligent and humane treatment of horses. The cruelty of the average Paris driver is proverbial; overloading is customary and drivers seem to have no other idea but that abuse and swearing are necessary to secure results. Our veterinarians are endeavoring to instill some of the elements of kindness and scientific care in the management of these abused beasts.

While the efficacy of soda lye against worms parasitic in other animals was not tested, it is probable, says the Department, that it has no value. The digestive tract of sheep is much more complex than that of hogs, and it is probable that a drug having no apparent effect on worms in the comparatively simple digestive tract of hogs would be equally unsatisfactory in the case of sheep and other ruminants.

Manufacturers of soda lye are warned to remove labels on which are printed unwarranted claims that the product has remedial or preventive powers against worms, or render themselves liable under the provisions of the Insecticide Act of 1910.

I find Lacroix's "Lameness of the Horse" all and more than you claim for it.

WM. HOWARD, D. V. M.

Oakboro, N. C.

Dr. A. T. Kinsley, president of the Kansas City Veterinary College, was called in consultation to determine the cause of the trouble which was causing the loss of valuable hogs in Judge Doak's herd at Gallatin, Mo. The diagnosis of pneumonia, which had been made by the local veterinarian, Dr. Sullivan, was sustained by Dr. Kinsley.

Autopsy having proven the presence of hemorrhagic septicemia among a herd of cattle in Oklahoma County, Okla., the remainder of the herd was promptly vaccinated and quarantined. Loss from this source has also been reported in other parts of Oklahoma, recently.

Epizootics and Their Control During War

Miessner—Leibold

This work is invaluable for the practicing veterinarian, who serves his country as guardian of its live stock industry.

The veterinarian in military service will find the book indispensable.

For the practitioner, Miessner's "Epizootics and Their Control During War" is a dependable guide in the handling of infectious diseases of animals including their diagnosis, general and specific measures for coping with problems of sanitation and disinfection.

The army veterinarian will find this book of inestimable value because it is the work of a high authority, that is based upon actual experience in the present world war.

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Dr. C. F. Barry, Marseilles, Ill., has been made assistant state veterinarian, his territory including La Salle County.

Governor Harding has reappointed Dr. P. G. Button, of Cresco, Iowa, assistant state veterinarian for a term of three years.

Dr. F. D. Ketchum, for nineteen years inspector in charge of the Bureau of Animal Industry, South St. Paul, Minn., has been transferred to Wichita, Kan.

Dr. R. H. Treasy, Bismarck, N. D., chief of the animal husbandry division of the South Dakota State University, was stricken with apoplexy while on his way to Chicago and died in a Chicago hospital, December 4.

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Dr. E. R. Van De Guft, a graduate of the Cincinnati Veterinary College, who has for a number of years been practicing at Louisburg, N. C., is now at Anderson, S. C., where he has been appointed milk and meat inspector. Dr. Van De Guft has also been made commissioner of health of the city of Anderson, and has full charge of the health department at that place.

A recent fire caused considerable damage to the office fixtures, medicines, books, etc., of Dr. T. W. Watson, Corsicana, Texas.

It was a boy, 8¾ pounds, born November 8, name Arthur Clyde, son of Dr. and Mrs. Harold L. Watson, Montpelier, Vt.

Dr. George W. Temple, formerly of El Dorado, Ark., has been appointed deputy inspector of the Louisiana Live Stock Sanitary Board of Louisiana.

Dr. Chas. M. Mansfield, a graduate of the United States College of Veterinary Surgeons, and for a term of years a member of the faculty, died at his home in Washington, D. C., December 17, 1917. Dr. Mansfield had been in the employ of the Department of Agriculture for eight years, serving as veterinary inspector for five

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By Prof. L. A. Merillat, V. S.

Editor, Department of Surgery, American Journal of Veterinary Medicine

Among the most difficult and generally unsatisfactory equine affections that veterinarians have to treat, fistulae rank foremost. The limited amount of space heretofore allotted to discussions of this condition in works on surgery, has never done the subject justice, and the average veterinarian has not been materially helped thereby.

Doctor Merillat has but one aim in writing this book—to assist the practicing veterinarian who will read it studiously, to improve his methods so that he may handle such cases in a really satisfactory manner. His reputation is sufficient guarantee that this subject will be handled in a manner to instruct and greatly benefit readers.

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American Journal of Veterinary Medicine

No. 9 So. Clinton St., Chicago, Ill.

years, later doing laboratory work with the Bureau of Animal Industry.

As an aid in the conservation movement, the United States Bureau of Animal Industry will assign a specialist in animal diseases to work with the State Live Stock Commission of Utah in reducing disease among live stock to a minimum. This appointment will be additional to the appointment of a federal officer for educational work at the Utah Agricultural College at Logan. This work will include lectures before farmers' conventions, distribution of literature, etc.

Dr. F. E. Blake, a federal employe, has been assigned to St. Albans, Vt., to assist in the eradication of tuberculosis among cattle.

HOSKINS ARMY VETERINARIAN SCHOLARSHIP

Captain B. A. Seeley, of the Army Veterinarian Corps, stationed at Camp Logan, Texas, is responsible for the birth of the above movement. To give recognition and appreciation of the valuable services which Dean Hoskins has rendered to the army veterinary service, Captain Seeley, in an earnest appeal to the new members of the N. A. V. C., raised a purse of one hundred and seventy-five dollars and forwarded it to the Dean. True to the watchword of his Alma Mater—*Non nobis solum* (not for us alone)—Dean Hoskins decided not to accept the money as a personal gift, and so returned it to his Alma Mater for the above purpose, with the hope that it would afford a free education for some worthy young man who might in turn, if called upon, be able to serve his country with honor to the profession.

Dr. F. Morgan Peatfield, Lompoc, California, is planning to erect a veterinarian hospital at that place. The hospital will be equipped with the latest operating table and other equipment necessary for caring for every emergency arising in veterinary practice. Dr. Peatfield is a graduate of the Royal College of Veterinarians of London, and since his arrival in this country he has visited all the leading veterinary hospitals in Canada and the United States.

WINTER STEER FEEDING

Bulletin 206, Purdue Agricultural Experiment Stations, Lafayette, Ind.

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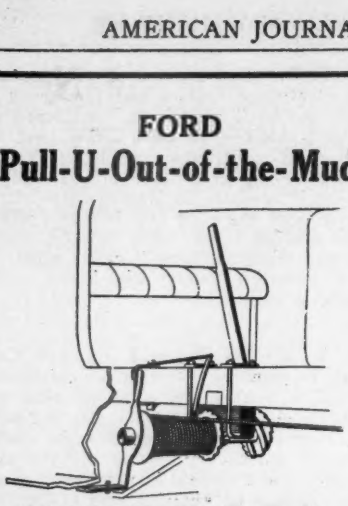

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WOOL AND THE WAR

Dr. E. T. Baker, who is well known to our readers as a frequent contributor to our pages and also as the author of "Sheep Diseases," has an interesting article in the January number of Munsey's Magazine, in which he emphasizes the growing importance of raising more sheep to provide for the insistent military demand for more wool to provide clothing for our soldiers.

"To keep our soldiers warm," says Baker, "millions of pounds of wool will be required." Since the average uniform requires four and one-half yards of olive-drab cloth, each yard containing fourteen ounces of wool, or nearly four pounds to the uniform, and blankets and other items of equipment nearly three pounds more, three uniforms a year being needed, and in actual warfare many more, the task is stupendous to supply enough wool for army needs alone, without taking into consideration the customary needs of the civilian population. Baker estimates that the requirements of the army, navy, the Red Cross and the general hospital supplies for the first year will be more than 50,000,000 pounds of wool, which is about one-fifth of our total production, sheared from nearly 50,000,000 sheep.

War with military operations on a gigantic scale has given great impetus to the sheep industry and the following excerpts from Baker's article will prove of especial interest in this connection:

"When the war began, the sheep industry had been for several years in a declining condition. The supply exceeded the demand. Wool was selling for twenty cents a pound or less, while a good ewe could be purchased for two or three dollars. The land used for grazing was rapidly being taken up by homesteaders, and for ten years, from 1904 to 1914, the number of sheep in the United States decreased nearly a million annually.

"Of the world's population, 800,000,000 wear silk or cotton, 6,000,000 dress in wool, and a few millions adorn themselves in fur and feathers, while the remainder, natives of tropical countries, are lightly clad in little more than a coat of sunburn. In round numbers, there are about 600,000,000 sheep in the world.

"In ordinary times of peace, wool makes several trips to market. First, it is sold and bought in the form of high-grade cloth or blankets; second, as cheaper clothing material; third, as shoddy material, and its fourth appearance may be in the guise of upholstery, while its last trip from the rag-bag carries it to the mills, which grind it into powder, and it is mixed with tar and converted into roofing. * * * Burrowing in trenches ruins uniforms at an unheard of rate. In former conflicts clothes could be stripped from the dead and used by the survivors, if necessary; but not in this

struggle. This means a total loss of huge amounts of wool.

"To further increase the scarcity of wool the flocks of such live-stock producing countries as Belgium, Serbia, Roumania, and northern France were practically wiped out. This was a loss of more than ten million sheep. Nearly as many more died in Australia from the effects of a severe drought, and as already noted, the numbers in the United States decreased owing to economic reasons.

"In the West, sheep raising is an important industry, at present second only to mining in its profitable returns. With wool around sixty cents a pound, and common sheep more than twenty dollars a head, these are bonanza days for the 'sheep kings.' However, expenses of production have increased heavily, while the winter of 1916-1917 was the most severe in thirty years."

The year in a sheep camp is described in an interesting manner by the author, but with this phase of the question our readers are doubtless familiar. The gist of the article goes to show the imperative need of wool as allies of health and strength, which are, after all, what wars are still won with. So the farmer may feel that he is indeed "doing his bit" by turning his attention to the raising of sheep for Uncle Sam and his allies, and thus help to win the war.

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MAKES AND SAVES FOR THE VETERINARIAN

The Veterinary Account Book (Vet. Med. Series No. 13) is a real addition to the veterinarian's business department. The concise hints in regard to collections and veterinary law will save the practitioner many a dollar, and this means much in these days of high priced drugs and excessive expenses.

"Special Equine Therapy," by Steffen, keeps up with the high standard of his previous books. I would call it the "pinch hitter" of my library because it treats of the unusual and puzzling cases. Without long-winded theories and scientific discussions that lead nowhere, this book gives a resume of the ailment, which is all the well read graduate veterinarian should need. It is certainly a well written and helpful book.

E. T. Baker, D. V. M.
Moscow, Idaho.

HOME-MADE SILOS

Farmer's Bulletin 855, United States Department of Agriculture

In this contribution from the bureau of animal industry complete directions for the construction of silos are given, many drawings showing the different stages of the work, making it possible for the man handy with tools to easily construct his own silos.

FACTS ABOUT ANTHRAX

By C. M. Haring
University of California, College of Agriculture, Berkeley, Cal.

This bulletin will prove especially valuable at this time when there is so much agitation concerning this disease, which is by no means confined to animals, man being a frequent sufferer. The disease may be contracted by handling carcasses and hides from anthrax animals, and is sometimes contracted by wearing furs from anthrax animals.

KILLING AND CURING PORK

By F. G. Ashbrook and G. A. Anthony
Farmer's Bulletin 913, United States Department of Agriculture

This is a practical handbook showing the various processes in the proper killing and curing of pork.

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PARASITIC ANAPHYLAXIS AND ALLERGY

By L. Van Es and A. F. Schalk

Bulletin No. 125, North Dakota Experiment Station.

This interesting bulletin gives the results of the experiments which the authors undertook to obtain additional light on the new theory advanced by the Seyderhelms as to the cause of infectious anemia or swamp fever in the horse. Their conclusions raise some interesting problems for the investigator and a wide field for further investigation presents itself. The bulletin is well worth careful perusal by the veterinarian.

HOG-CHOLERA CONTROL

By R. A. Craig and L. C. Kigin

Purdue University Experiment Station, Circular No. 62.

The statistics for Indiana show that the death rate in hogs in that state varies from 6.2 to 24.7 per cent annually, the average for six years (1910-1915) being about 13 per cent. Among preventive and curative measures the importance of resting the hog yards by moving the hogs to other yards and the plowing and planting the hog lots to a forage crop is emphasized. Hog lots planted to rye will later provide plenty of clean feed and a clean lot.

PRECAUTIONS AGAINST POISONING BY JOHNSON GRASS AND OTHER SORGHUMS

By C. M. Haring

University of California College of Agriculture.

While for many years it has been recognized that green sorghums, when stunted or in the stage known as "second growth" may sometimes prove poisonous to stock, the author believes that the danger has been overestimated, except in the case of Johnson grass, as the death rate from this cause is comparatively low. In California losses of sheep and cattle from Johnson grass are frequent. Various antidotes are given in the bulletin.

LIFE HISTORY OF ASCARIS LUMBSICOIDES AND RELATED FORMS

By B. H. Ransom and W. D. Foster

(Reprint from Journal of Agricultural Research)

This pamphlet, which was considered worthy of reproduction by the secretary of agriculture, reviews the work of Capt. F. H. Stewart, of the Indian Medical Service.

Stewart was led to a conclusion, contrary to the accepted opinion, that the infection of man or pig with Ascaris results from the ingestion of the eggs of the parasite. The authors' tentative conclusions are given pending further extended statements in a future paper.

INFECTIOUS ABORTION IN COWS

By F. M. Hayes

Circular 183, University of California College of Agriculture.

No disease of cattle, with the exception of tuberculosis, is of so much importance from an economical standpoint at the present time in California, and especially as the infection is being extended to cattle ranges. Practical points in the treatment and prevention of the infection are given in the pamphlet.

REPORT OF THE NEW YORK VETERINARY COLLEGE AT CORNELL

This book of 314 pages comprises a complete report of the work of the college during the year 1915-1916. Much valuable experimentation has been done by the school in regard to hog cholera transmission through the medium of infected pork. Hogs that are fed garbage very frequently contract cholera, and garbage often contains pork trimmings, hence it is reasonable to suppose that this may be one of many sources for spreading the disease. Abortion among cattle is discussed at length, and the results of reasearch and experimental work and plans for control, form an interesting chapter. Other chapters are devoted to reports of work done in various lines of experimental endeavor, all of value to those interested in stock raising.

SWINE-JUDGING SUGGESTIONS FOR PIG-CLUB MEMBERS

By J. D. McVean and F. G. Ashbrook

Bulletin 83, United States Department of Agriculture

This circular is intended mainly for the beginner in the study of judging hogs, and more especially for the boys and girls of the pig clubs. The boy or girl who becomes a good judge of live stock will find the knowledge a source of profit and satisfaction.

JHOOLING IN CAMELS

By H. E. Cross, M. R. C. V. S., D. V. H., A. Sc., Camel Specialist, Agricultural Research Institute, Pusa, Sohawa, India

Should any veterinarian be secretly nourishing an ambition to become a camel specialist, he should carefully study the subject of "Jhooling" in Bulletin 72, issued by the above research institute. Jhooling is a contagious disease manifesting itself in the formation of local tumors, hot and painful, of a fibrous character, terminating in suppuration and raw patches. Camels readily contract it by contact with diseased camels, but other animals are not susceptible to it. Camels so affected should be isolated at once.

Bacillary White Diarrhea or Fatal Septicemia of Chicks and Coccidosis or Coccidial Enteritis of Chicks, by J. R. Beach, Circular No. 162, University of California, College of Agriculture, Berkeley, Cal.

Experimental Studies in Hog Cholera, by R. A. Craig and R. A. Whiting, Purdue University Experiment Station, Lafayette, Ind.

Screw Worms and Other Maggots Affecting Animals, by F. C. Bishop and D. C. Parham, Farmer's Bulletin No. 857, United States Department of Agriculture.

Breeds of Dairy Cows, by H. P. Davis, Farmer's Bulletin No. 893, United States Department of Agriculture.

FLEAS AND THEIR CONTROL

By F. C. Bishop

Farmer's Bulletin 897, United States Department of Agriculture

This is a contribution from the bureau of entymology which will be of value to the canine practitioner.

BACKYARD POULTRY KEEPING

By R. R. Slocum

Farmer's Bulletin 889, United States Department of Agriculture

This is a bulletin primarily prepared for the city or village man who is interested in the keeping of a small flock of laying hens.

REPAIR OF BONE IN DOMESTIC FOWL

By B. F. Kaup

Technical Bulletin 14, North Carolina Agricultural Experiment Station

This is a technical work which would be of interest only to the man engaged in high-class poultry culture, and who is able to deal in scientific terms and methods.

HOG CHOLERA PREVENTION AND THE SERUM TREATMENT

By P. T. Peterson

University of California, College of Agriculture, Berkeley, Cal.

This is a treatise on hog cholera, which is prevalent in all sections of California where hogs are raised. Full directions for treatment are given, as well as a number of pages devoted to the cause and spread of the disease.

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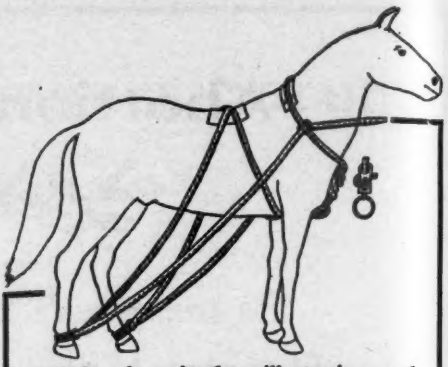

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American Journal of Veterinary Medicine
9 S. Clinton St., Chicago, Ill.

Some Studies in Forage Poisoning

This paper by Dr. Robert Graham of the University of Illinois, was illustrated with a number of stereopticon slides depicting results of experiments conducted in forage poisoning. He cited the theory of Dr. Leonard Pearson as to the anaology between forage poisoning in animals and meat poisoning in man and the fact that the Bacillus botulinus had been isolated from cases of the latter disease. While the causative factor of forage poisoning could not be definitely identified as the Bacillus botulinus, yet it was demonstrated that when this bacillus was fed to animals it produced symptoms and lesions similar to those of forage poisoning resulting in the death of the subjects. Furthermore, it was shown that a serum against the Bacillus botulinus was beneficial in typical cases of forage poisoning, experiments in administering the serum to several animals poisoned from forage resulting in the recovery of those so treated while in practically every instance the control animals succumbed to the disease.

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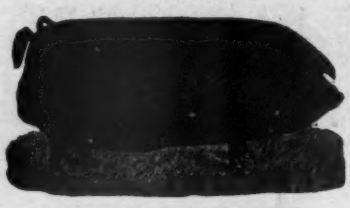

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